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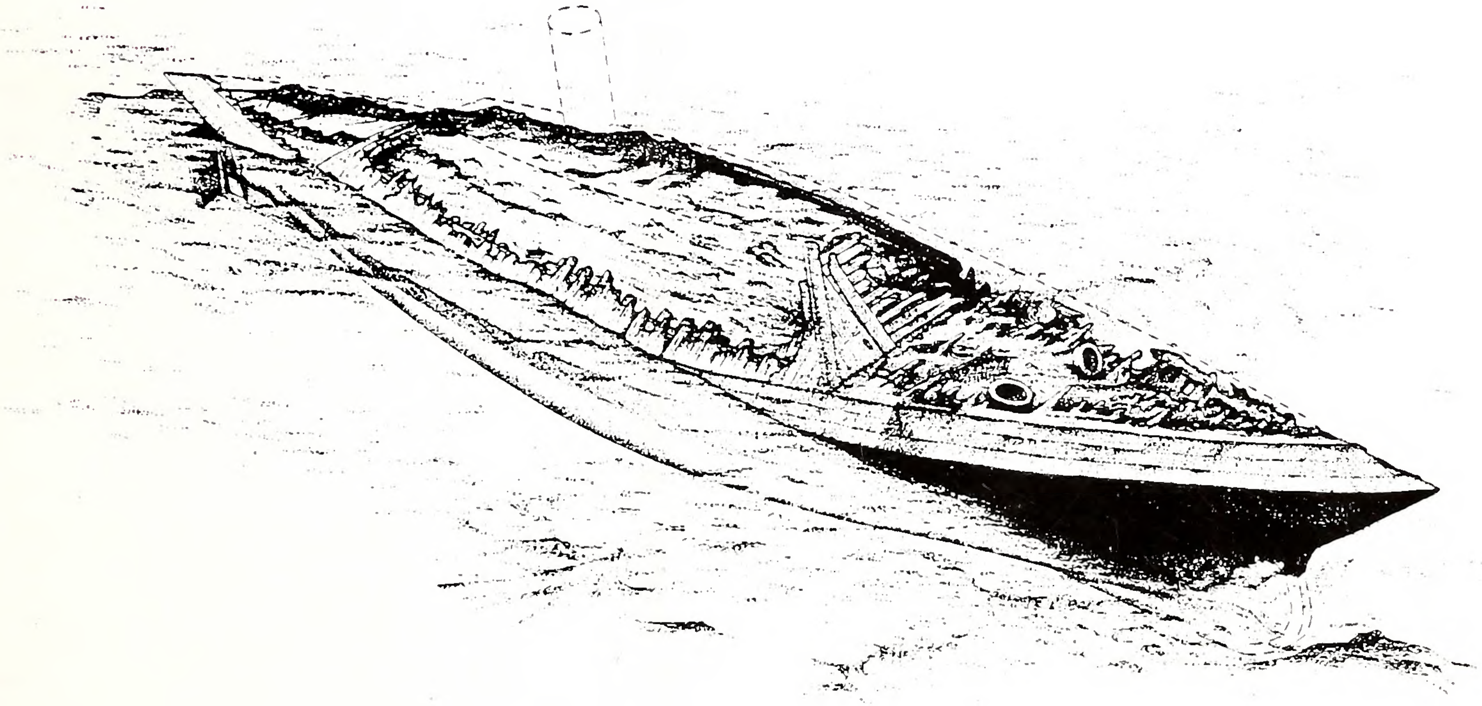
The Cape Fear — Northeast Cape Fear Rivers Comprehensive Study

A Maritime History and Survey of the Cape Fear and Northeast Cape Fear Rivers, Wilmington Harbor, North Carolina



Volume 2
Submerged Cultural Resources Survey

Glenn C. Overton
Richard W. Lawrence

with contributions by
Claude V. Jackson III

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The Cape Fear — Northeast Cape Fear Rivers Comprehensive Study

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A Maritime History and Survey of the Cape Fear and Northeast Cape Fear Rivers, Wilmington Harbor, North Carolina

Volume 2

Submerged Cultural Resources Survey

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State Historic Preservation Office
Division of Archives and History
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April 1996

North Carolina Department of Cultural Resources
Division of Archives and History
1996

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Cover Illustration: CSS *Raleigh*. Drawn by Martin Peebles.

Abstract

This work presents the findings of the cultural resource component of the Cape Fear-Northeast Cape Fear Rivers Comprehensive Study conducted from March 1993 to October 1994 as a cooperative project among the North Carolina Department of Environment, Health, and Natural Resources; the Underwater Archaeology Unit (UAU) of the Department of Cultural Resources; and the Wilmington District, U.S. Army Corps of Engineers (USACOE). The need for the comprehensive study arose from projected deepening and widening of the 33.8-mile-long Cape Fear and Northeast Cape Fear Rivers navigation channel in New Hanover and Brunswick Counties, North Carolina. A comprehensive historical overview of the Cape Fear River was produced, as well as annotated maps of the rivers that showed areas of maritime activity, ferries, bridges, plantations, lighthouses, quarantine stations, fortifications, dredging activity and historically documented and known shipwreck sites. Based on this compiled historical documentation, portions of the river were designated as priority areas according to their potential to yield significant underwater archaeological sites. A remote sensing survey and archaeological investigation was conducted at each of the established priority areas, resulting in the documentation of several previously unrecorded shipwreck sites. More than 150 dives were made on 102 different remote sensing targets. Several targets proved to yield historically significant shipwrecks, among them the Civil War ironclads *North Carolina* and *Raleigh*, the blockade-runner *Kate*, and the early twentieth-century schooner barge *Belfast*. Findings from the cartographic and historical research and the cultural survey are presented in two volumes, as well as recommendations on the protection of sites threatened by the proposed improvements to the navigation channel and their potential eligiblity for listing in the National Register of Historic Places.

Acknowledgments

To undertake a project of this magnitude required the assistance and expertise of several people. While it is not possible to mention everyone involved, the following persons deserve special recognition. We are grateful for the support and cooperation provided by the Department of Environment, Health, and Natural Resources (DEHNR) of the North Carolina Division of Water Resources, and particularly John Morris and John Sutherland for their work on many aspects of this project. Equal appreciation is extended to the Wilmington District, U.S. Army Corps of Engineers (USACOE), for recognizing the need for a comprehensive study of the Cape Fear River and providing support, personnel, equipment, and technical assistance. Many thanks to everyone at the USACOE that assisted on this project, including Col. Robert Sperberg, Lawrence Saunders, Richard Kimmel, Frank Snipes, Coleman Long, Glenn Boone, and Hugh Heine, Ed Turner, Marc Reavis, Ed Summers, and the crews of the *Wanchese* and the *Gillette*.

Special thanks go to those tireless individuals within our own Department of Cultural Resources for their help. Without the continued support from Secretary Betty McCain, Bill Price, David Brook, Wilson Angley, Sarah Freeman, Sondra Ward, Renee Gledhill-Earley, Steve Claggett, Bob Topkins, Lang Baradell, and others in the Division of Archives and History, this project could not have been completed. To the rest of our colleagues at the Underwater Archaeology Unit—Mark Wilde-Ramsing, Leslie S. Bright, Julep Gillman-Bryan, and Barbara Brooks—the authors wish to extend their personal thanks for all the work performed in all phases of this project. Our deepest appreciation and thanks go to the field crew of Glenn Overton, Howard Scott, and Martin Peebles. We are grateful to John Kennington for doing the initial computer maps. An extra acknowledgment is extended to Mr. Peebles for the numerous excellent drawings used in this report.

For the generous use of his equipment and providing technical support, Gordon Watts of Tidewater Atlantic Research is specially recognized. Thanks go as well to the staff at Carolina Beach State Park for allowing us the use of its marine facilities during this project. The enormous task of compiling the vast maritime history of the Cape Fear River was greatly aided by the knowledgeable assistance from such individuals as Beverly Tetterton at the New Hanover County Library and historian William Reaves. To all those other individuals who contributed valuable assistance, we are deeply appreciative.

Claude V. Jackson
Richard W. Lawrence
Glenn C. Overton
September 1, 1995

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Introduction

From March 1993 to October 1994 the state of North Carolina and the Wilmington District, U.S. Army Corps of Engineers (USACOE), conducted a cultural resource survey as part of the Cape Fear-Northeast Cape Fear Rivers Comprehensive Study. The need for the comprehensive study arose from findings by the U.S. Army Corps of Engineers in its May 1991 (revised May 1992) *Reconnaissance Report on Improvement of Navigation Cape Fear-Northeast Cape Fear Rivers Comprehensive Study* conducted under authority of a United States House of Representatives resolution adopted September 8, 1988, by the Committee on Public Works and Transportation (USACOE 1992, Vol. III:A-36-38; USACOE 1994:1). In the report, existing channel depths and widths were found to be inadequate for the deep-draft vessels that called at the Port of Wilmington. Public concern was specifically directed toward increasing the channel depth over the ocean bar and up to Wilmington and widening the channel with the placement of a 6.2-mile-long passing lane to accomodate two-way river traffic. The reconnaissance report concluded that improvements to the Lower Cape Fear River, or Wilmington Harbor, were practical and called for a feasibility study that included a cultural resource survey and an Environmental Impact Statement. Under mutual consent the North Carolina Department of Environment, Health, and Natural Resources (DEHNR) agreed to fund the Underwater Archaeology Unit (UAU) of the North Carolina Department of Cultural Resources (DCR) in conducting a historical and cartographic study and a submerged cultural resources survey as part of the Cape Fear River feasibility study (Memorandum of Agreement, March 17, 1993).

Wilmington Harbor is a Federal navigation project located along the Cape Fear and Northeast Cape Fear Rivers in New Hanover and Brunswick Counties, North Carolina **(Figure 38)**. The navigation project extends from the Cape Fear River ocean bar upstream to a point 1.7 miles above the Hilton Railroad Bridge at Wilmington on the Northeast Cape Fear River. Total length of the existing Wilmington Harbor project is approximately 33.8 miles (including the 3-mile Bald Head ocean channel). Over the last one hundred years navigable depths and widths within the harbor have increased to their present capacity for oceangoing vessels. Currently there are forty-seven major piers, wharves, docks, and mooring dolphins in Wilmington Harbor. Fourteen of the major docking facilities are owned by the North Carolina State Ports Authority. The State Ports Authority facilities include eleven berths and approximately 6,800 feet of berthing (USACOE 1994:7). Deep-draft and oceangoing vessels account for approximately 82 percent of the commerce of Wilmington Harbor, almost equally divided between foreign and coastwise trade. Petroleum products and industrial chemicals constitute the majority of the tonnage (USACOE 1992:3).

The existing Corps of Engineers Federal Project at Wilmington Harbor is authorized to maintain a main channel of 40 feet deep and 500 feet wide from the Atlantic Ocean through the ocean bar and entrance channels. Because of dredging inaccuracies and rock obstructions, however, the authorized depth of 40 feet has not been achieved at

Smith Island or Baldhead Shoal channel. From the entrance channels to the upper end of the anchorage/turning basin at the Cape Fear Memorial Bridge the Corps has been authorized to maintain the main channel at 38 feet deep and 400 feet wide. From the Cape Fear Memorial Bridge to the Hilton Railroad Bridge over the Northeast Cape Fear River, a channel of 32 feet deep and 400 feet wide is maintained and includes a turning basin of the same depth. The channel is maintained at 25 feet deep and 200 feet wide from the Hilton Railroad Bridge to a point 1.7 miles above the bridge. A turning basin located 1.25 miles above the Hilton Railroad Bridge is also dredged to the same depth (USACOE 1994:7).

The Corps of Engineers considered several alternative improvements to the Cape Fear and Northeast Cape Fear Rivers prior to this study. Of the options the recommended plan for further study at Wilmington Harbor included improvements at three reaches. Reach 1 is the main navigation channel from the ocean bar to the Cape Fear Memorial Bridge at the State Port; Reach 2 extends from the Cape Fear Memorial Bridge to the Hilton railroad bridge; and Reach 3 extends from the Hilton railroad bridge to the upstream limits of the Federal project on the Northeast Cape Fear River (USACOE 1996:11).

At Reach 1 the recommended plan includes deepening the ocean bar channel and entrance channels to 44 feet and maintaining the existing width of 500 feet. The river channel would be deepened from 38 to 42 feet from the Lower Swash Channel to the Cape Fear Memorial Bridge. Other improvements recommended for further study include widening the existing 400-foot channel to 600 feet and constructing a 6.2-mile-long passing lane that would extend from river mile 10 upriver to river mile 16.2. An anchorage/turning basin upriver from the North Carolina State Port would also be widened from 1,200 feet wide to 1,500 feet wide (USACOE 1996:11).

Deepening of Reach 2 from its current depth of 32 feet to 38 feet was authorized as part of the Northeast Cape Fear River project. The recommended plan includes no further deepening of this reach on the present project (USACOE 1996:11).

At Reach 3 the recommended plan includes deepening the river from the existing 25-foot depth to 34 feet. Channel deepening would begin at a point 750 feet upstream from the Hilton Bridge. The existing 200-foot channel would be widened to 300 feet. Widening of the upper turning basin from 700 to 800 feet and dredging to 34 feet is also included in the recommended plan (USACOE 1996:11).

The cultural resource component of the Cape Fear-Northeast Cape Fear Rivers Comprehensive Study consisted of a cartographic, site records, and literature review; a submerged cultural resources survey; and the production of a final report. This work represents the results of the cultural resource study in two volumes. The first volume details the historical and cartographic investigations, while the second contains the results of the survey investigation.

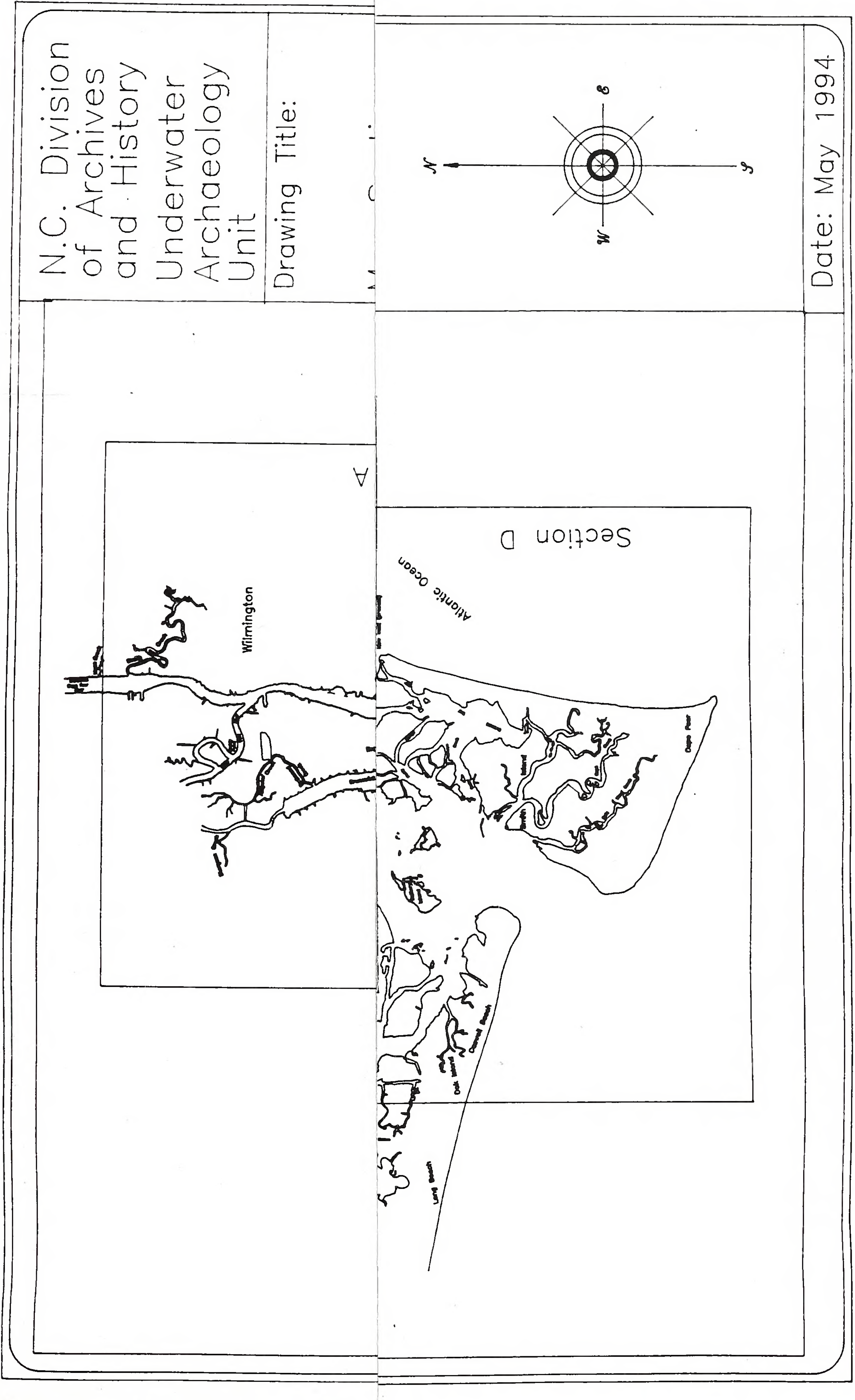
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Figure 38. Map Sections of the I

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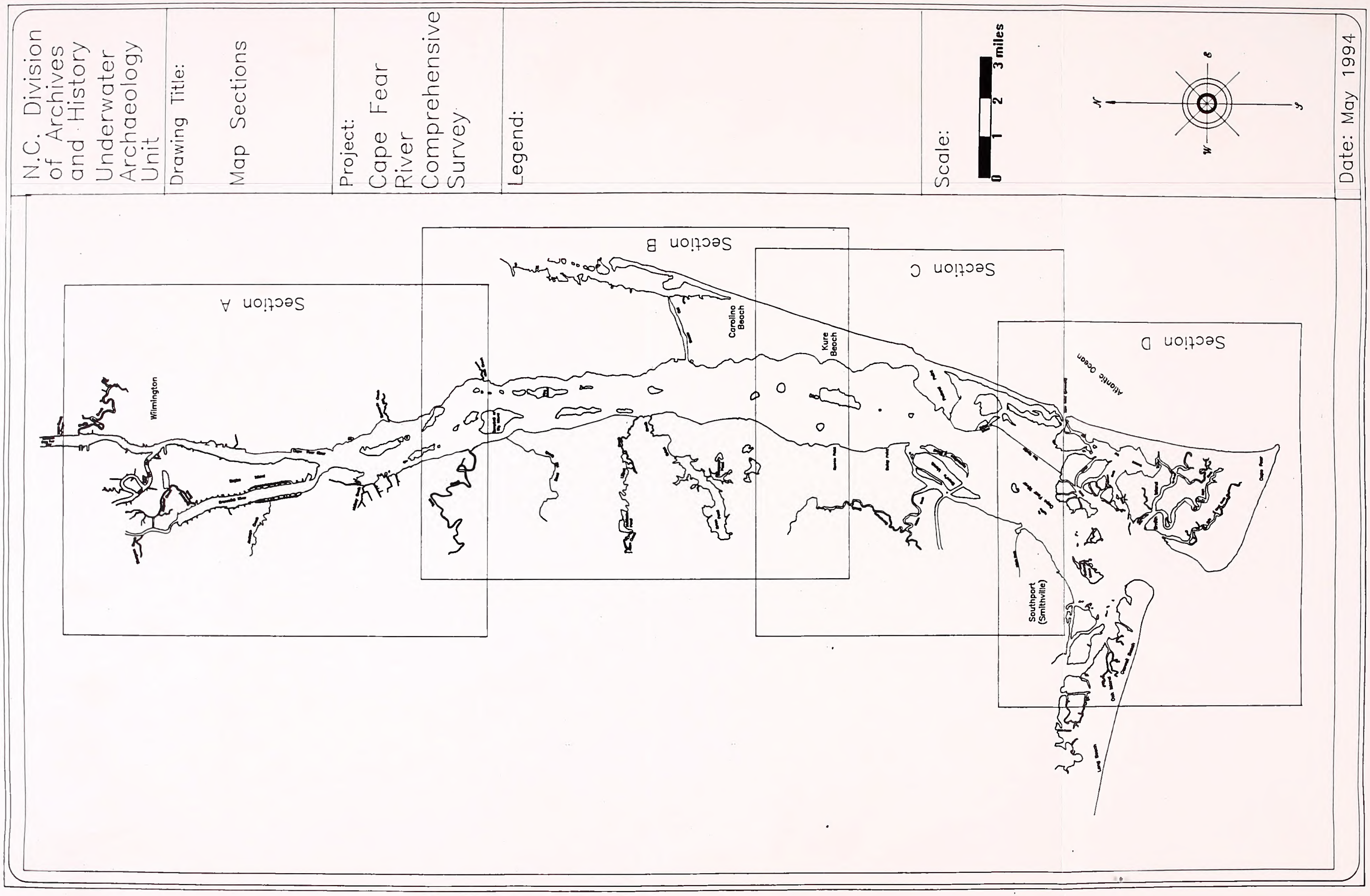
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Carolina Beach
Kure Beach
Atlantic Ocean
Southport (Smithville)

Figure 38. Map Sections of the lower Cape Fear River.

Investigations during the cartographic, site records, and literature review phase of the study included a thorough examination of maps, shipwreck records, and historical and archaeological reports concerning the Cape Fear and Northeast Cape Fear Rivers. Research materials were obtained from the Wilmington Corps of Engineers office, the North Carolina Underwater Archaeology Unit, New Hanover County Library and Museum, the North Carolina State Archives, and the National Archives. During this phase a comprehensive historical overview of the Cape Fear River was produced, as were computer-generated maps of the river that showed areas of maritime activity such as plantation and fortification sites, lighthouses, ferries, quarantine stations, historically documented and known shipwreck sites, and other areas of related maritime significance.

Based on the historical documentation, areas within the rivers were assigned a high, medium, or low potential for containing significant underwater archaeological sites. Recommendations were then made concerning the type and intensity of survey needed for each portion of the river. Based on their potential to yield submerged cultural resources, twelve priority areas were selected for a remote sensing survey. Each area was selected on the basis of the accuracy of historical documentation of likely shipwreck locations or from known activity during historic times.

The UAU and the Corps of Engineers conducted the systematic submerged cultural resources survey of the Cape Fear and Northeast Cape Fear Rivers during the fall of 1993. The USACOE provided a vessel, magnetometer, positioning equipment, and staff to conduct part of the remote sensing survey and provide the data analysis. The UAU then utilized that information to conduct a side-scan sonar survey and diver investigation. Technical personnel, a dive boat, diving equipment, and excavation and site documentation equipment were provided by the Underwater Archaology Unit. Within the established priority areas more than 150 dives were made on 102 different remote sensing targets. A complete description of the survey methodology can be found in the Fieldwork Methodology Section of Volume 2. Based on the findings of the survey, recommendations were made to the Corps of Engineers in the form of an illustrated report that showed those sites threatened by the proposed improvements to the navigation channel and their potential eligiblity for listing in the National Register of Historic Places.

Previous Cultural Resource Investigations

Contained within this section are brief discussions of several previous cultural resource investigations conducted along the lower Cape Fear and Northeast Cape Fear Rivers. The locations of the survey, or testing projects described, focus on areas within or adjacent to the rivers. Several of the individual historic property surveys or excavations conducted within the Wilmington city limits not relevant to the project have been omitted.

Brunswick Town Archaeological Surveys, Stanley South and Lawrence Lee, 1958-1967.

In 1958 J. Laurence Sprunt, owner of Orton Plantation, donated to the state most of land now included in Brunswick Town State Historic Site. The first objective of archaeological research at the site was to locate all building foundations, such as public buildings, shops, and homes. That same year Dr. E. Lawrence Lee Jr., a professor of history (who was instrumental in acquiring the property for the state), began the task of clearing the one-hundred-year undergrowth and locating foundations belonging to Brunswick Town and then correlating those structures with sites drawn on the Sauthier map of 1769. In July, Stanley South, a historical archaeologist, joined with Dr. Lee on the project. South established over the site the permanent grid system later utilized in archaeological excavations.

In the first few months of work at Brunswick, Lee and South discovered the foundations of sixty-five structures. Excavations of about twenty-five of those structures over the next two decades included: buildings related to the old town of Brunswick and some related to the Civil War occupation of Fort Anderson (South 1960). Historical events such as the burning of the town in 1776 by the British have contributed to changes in the site. In addition, the construction of Fort Anderson (Fort St. Philip) destroyed and/or buried under Batteries A or B some of the Brunswick dwellings. Artillery bombardment of the fort in 1865 also damaged the site.

The excavations by Lee and South ended in 1967, and since then much attention has been given to caring for the exposed ruins. Protection of the batteries has required that established paths and walkways be maintained and limited. Some "short cut" paths have resulted in uncontrolled erosion. Construction of parking areas, a visitor center, equipment building, picnic areas, and footbridges additionally altered the site to some extent. Dredge activities in the channel of the Cape Fear River have altered the floor of the river, but archaeological resources could remain intact in the shallower parts of the river nearest to the shoreline. The history of the town and fort, as preserved in The Colonial Records of North Carolina, along with analysis of the archaeological data, have resulted in a vivid reconstruction of the events and life-styles of the inhabitants at Brunswick (DAH 1969; South 1960).

Brunswick Town Survey for Wreck of the *Fortuna*, North Carolina Division of Archives and History and the North Carolina Skin Diving Council, 1968 and 1969.
On September 14-15, 1968, members of the North Carolina Skin Diving Council and archaeologists from the North Carolina Division of Archives and History conducted a search of the river bottom off Brunswick Town for the remains of the Spanish privateer *Fortuna* which was sunk during a raid on the town in 1748. Acting on information provided by Wilmington historian Charles H. Foard, approximately fifteen divers searched the bottom from the high-tide mark to a position 200 feet offshore. The search, conducted in zero-visibility conditions, produced no evidence of the *Fortuna*. The divers and archaeologists recovered only a collection of colonial glass fragments, pottery sherds, iron concretions, and Civil War period projectiles, glass fragments, and shell fragments (UAU 1975).

On May 19, 1969, divers from the North Carolina Skin Diving Council, supervised by personnel from the Division of Archives and History, again conducted swim searches of the Brunswick Town riverfront. Those efforts concentrated on the area from approximately 200 feet offshore to the edge of the Cape Fear River channel. At a position approximately 100 feet east of the pilings that marked the position of an old steamer dock, attempts were made to snag the remains of the *Fortuna* with grapples. Although the grappling operation located a depression approximately 30 feet deep, neither the search of the bottom nor the dragging operations produced evidence of the remains of the Spanish vessel. The divers recovered only a small collection of colonial and Civil War-period artifacts similar to those retrieved in 1968 (UAU 1975).

Maintenance Dredging of Basins and Channels at Military Ocean Terminal, Sunny Point (MOTSU), N.C. Coastal Zone Resources Division for Wilmington District, U.S. Army Corps of Engineers, 1972.
During the preparation of an environmental impact statement in 1972 for proposed maintenance dredging of basins and channels at MOTSU, Coastal Zone Resources (CZR) took into consideration historical resources. CZR briefly described in its report the known historic and archaeological resources. The researchers conducted no fieldwork as part of the investigation. Findings from the study concluded that the proposed maintenance dredging would not impact any cultural resources identified in the project area (CZR 1972).

Brunswick Town Survey for Wreck of *Fortuna*, North Carolina Division of Archives and History and the North Carolina Skin Diving Council, 1973.
On April 15, 1973, council divers and state archaeologists made a third attempt to locate the remains of the Spanish vessel *Fortuna* lost at Brunswick Town. Council divers working under the direction of staff from the Division of Archives and History this time searched the areas immediately below the southern earthworks of Fort Anderson

to the low-water mark and the bottom of the river immediately offshore. The divers conducted their search with probes within a controlled grid that extended from the shoreline in the vicinity of the earthworks to a point approximately 100 feet offshore. Like the previous efforts, the search produced no identifiable evidence of the *Fortuna*, although it recovered similar colonial and Civil War period artifacts (UAU 1975).

Brunswick Town Magnetometer Survey, North Carolina Division of Archives and History and University of North Carolina—Wilmington, 1975.

Staff from the North Carolina Division of Archives and History and the University of North Carolina at Wilmington implemented in 1975 a magnetometer survey of the Cape Fear River immediately east of the Brunswick Town State Historic Site to isolate cultural material on the river bottom that might be disturbed or destroyed by the construction of a proposed dock and other site-development activities along the waterfront. The Coast and Geodetic Survey benchmark "Ruins" located on the west bank of the Cape Fear River (approximately 12 miles below Wilmington) served as station #2 during the survey and represented the approximate center of the area searched.

The magnetometer survey revealed a complex series of magnetic anomalies located between the western bank of the Cape Fear River at the historic site and the western slope of the shipping channel immediately east of the site. The surveyors found that the heaviest concentration of magnetically identifiable material existed between the ballast stone accumulations east of the benchmark and the ballast stone accumulation approximately 700 feet north and east of the Battery "A" complex. To the east of those two points anomalies ranged in intensity from 5 to 85 gammas and were distributed over the bottom slope to a depth of 35 feet. With the exception of several targets found well into the channel, the incidence of material seemed to diminish rapidly below the 20-foot bottom contour.

Investigations to both the north and south of the major concentration of material yielded additional anomalies. In the shallow bay north of station #3 the anomalies ranged in intensity from 5 to 80 gammas. One multicomponent anomaly, found approximately 550 feet northeast of station #4, when examined at low tide was found to contain a large amount of rock similar to that used in the construction of the rock jetty that closed New Inlet. No evidence of any structural remains could be found, although the remains may be associated with one of the barges used to transport the construction material. South of station #2, anomalies ranged in intensity from 10 to 72 gammas and were found as deep as the 30-foot bottom contour (UAU 1975).

An Archaeological Reconnaissance of Certain Areas of the Lower Cape Fear River, Thomas Loftfield, Principal Investigator, 1976.

During February and March 1976, archaeologist Thomas Loftfield conducted a reconnaissance along sections of the Lower Cape Fear River for the U.S. Army Corps of Engineers, Wilmington District, to determine if archaeological sites were threatened within proposed areas near Wilmington to be used by the USACOE for dredge disposal. Loftfield pronounced certain proposed disposal areas located on Eagles Island devoid of archaeological sites. Loftfield's findings also state that "any such remains have already been covered by dredged material or have been destroyed by past development on the island" (Loftfield 1976). Investigation of a disposal island located in the center of the river produced only redeposited prehistoric ceramics. Loftfield discovered some inland sites that were not threatened by the proposed disposal from maintenance dredging (Loftfield 1976).

New Hanover County Archaeological Survey, Comprehensive Employee-Training Act (C.E.T.A.) Project, Mark Wilde-Ramsing, Principal Investigator, 1978.
Over a one-year period during 1977 and 1978, employees of the C.E.T.A. program conducted an intensive archaeological survey of New Hanover County. Based upon the ". . . great amount of subsurface strata exposed by road cuts, construction projects, agricultural fields, eroding coast and sound shorelines . . . river and creek banks, and many other natural and artificial agents, a good sample of New Hanover County archaeological sites was expected to be located." The project documented a total of 483 prehistoric sites and more than 80 historic sites. One of the special projects undertaken by the New Hanover County archaeological survey crew involved the recovery and conservation of a dugout canoe from Greenfield Lake in Wilmington. Wood sample analysis taken from the canoe indicated that it was constructed from bald cypress (Wilde-Ramsing 1978).

Survey of Selected Portions of the Military Ocean Terminal, Sunny Point, Coastal Zone Resources, Wes Hall, Principal Investigator, 1979.
From June through September 1979 archaeologist Wes Hall conducted a cultural resource investigation at the Military Ocean Terminal, Sunny Point (MOTSU) for the Coastal Zone Resources Division of Ocean Data Systems. Hall investigated two areas within the facility: project area #38, known as the CADS Holding Area, and project area #43, known as the Rail Expansion Area. Approximately 738 acres comprised the survey areas. Shovel tests placed every 150 feet were spaced at 400-foot intervals across the project area. The results of the testing yielded two historic sites: MOTSU-1 (31BW373), determined to be a tar kiln, met the requirements for the National Register of Historic Places. Hall recommended avoidance, and it was subsequently carried out after additional testing by the placement of a fence around the kiln site; and MOTSU-2 (31BW374), determined to have limited research potential and not to meet National Register eligibility criteria (CZR 1979).

Town Creek Magnetometer Survey, North Carolina Underwater Archaeology Unit, 1980.

On July 17, 1980, staff personnel of the North Carolina Underwater Archaeology Unit conducted a magnetometer survey of Town Creek in Brunswick County. The survey began at the mouth of Town Creek and proceeded up the creek approximately 5 miles. The survey conducted along both sides of Town Creek produced five recorded magnetic anomolies. Investigation of the sites was limited to recording magnetic data and location.

Magnetometer Survey of Battery Island and the CSS *North Carolina* Wreck Site, North Carolina Underwater Archaeology Unit, 1980.

Staff from the North Carolina Underwater Archaeology Unit conducted a survey at Battery Island and a search for the CSS *North Carolina* on September 23, 1980. The survey recorded at least six magnetic targets west of Battery Island. The UAU conducted no diving assessment of targets and did not confirm the location of the *North Carolina* wreck (UAU 1980b).

Magnetometer Survey and Cultural Resource Assessment at Military Ocean Terminal, Sunny Point (MOTSU), U.S. Army Corps of Engineers, Richard Anuskiewicz, Principal Investigator, 1981.

On September 30 and October 1, 1981, personnel from the U.S. Army Corps of Engineers, Districts of Savannah and Wilmington, conducted a proton magnetometer survey of the entrance channel and turning basin at Wharf 1, or the South Wharf, located at the Military Ocean Terminal, Sunny Point (MOTSU). The state requested that the study be undertaken in order to survey, locate, and map magnetic anomolies occurring within the proposed expansion area contiguous to Wharf 1 of MOTSU. Archaeologists identified anomalies and assigned area numbers. The results of the survey identified sixteen anomalies within nine areas proposed for new dredging at the entrance channel and turning basin at MOTSU Wharf 1. On December 15-17, 1981, divers conducted an assessment of five of the nine areas of selected magnetic anomalies. Visual inspection of the targets revealed that all were associated with modern marine debris (USACOE 1981).

Archaeological Reconnaissance of Areas Bordering Snows Cut, Archaeological Research Consultants, Michael Baker, Principal Investigator, 1981.

Archaeological field investigations were carried out in areas adjacent to Snows Cut from January 30 to February 1, 1981, by Archaeological Research Consultants. The U.S. Army Corps of Engineers, Wilmington District, was considering the project location for use as a sand borrow area. Within the 200-to-250-foot right-of-way that bordered Snows Cut, no sites had been recorded previously. Fieldwork consisted of visual inspection of the cutbank profiles of Snows Cut, as well as exposed ground surface within the right-of-way. Shovel tests complemented the visual inspection at 50-meter intervals. Seven isolated artifact finds were recovered. All isolated finds but one consisted of a single prehistoric pottery sherd. The exception was an area in which two sherds were recovered. No additional archaeological study was recommended (ARC 1981a).

Archaeological Reconnaissance of the Carolina Beach Borrow Area, Archaeological Research Consultants, Michael Baker, Principal Investigator, 1981.

During the period January 5-11, 1981, Archaeological Research Consultants (ARC) undertook an intensive archaeological reconnaissance of an approximate eighty-acre tract bordering the eastern shore of the Cape Fear River for the Wilmington District, U.S. Army Corps of Engineers. ARC surveyed an area in the MOTSU buffer zone along Federal Point designated as the Carolina Beach Borrow Area. The Wilmington District intended to remove sand from that area and utilize it on a coastal beach erosion control project.

Two previously identified archaeological sites (31NH107 and 31NH398) had been identified within the project area prior to the ARC survey. ARC reinvestigated both sites and found them to contain little new information. Archaeologists with ARC shovel tested at 50-meter intervals, three transects established by the Wilmington District that totaled nearly 2 miles in length. The archaeologists identified no new archaeological sites. Additional investigation of the survey area incorporated visual inspection of jeep trails, open areas, and slightly disturbed areas. The surface survey of these areas, as well as the Cape Fear River shoreline, yielded two isolated finds of historic artifacts and the identification of two World War II military structure foundations. Neither of those sites was recommended for additional investigation.

The remaining portion of the fieldwork consisted of shovel testing topographic areas likely to yield cultural material. Two isolated finds of historic nature and two previously unrecorded prehistoric sites (31NH507 and 31NH508) were identified in that manner. ARC determined that the two prehistoric sites were relatively intact and recommended that they undergo additional investigation (ARC 1981b).

Cultural Resource Magnetic Survey of the Northeast Cape Fear River, Ocean Surveys, Inc., Alan Saltus, Principal Investigator, 1981.

Plans by the American Coal Exporting Company of Wilmington to produce a ship turning basin adjacent to its terminal called for a section of the Northeast Cape Fear River extending approximately 2,500 feet north of the Hilton railroad bridge to be dredged to a depth of 37 feet. Ocean Surveys conducted a magnetic remote sensing survey during the period September 2-5, 1981, in accordance with state regulations.

Thirty-six magnetic anomalies were documented within the survey area. Many of them, were attributed by Ocean Systems to "large magnetic effects produced by the ferrous structures associated with the Hilton railroad bridge at the south end of the site, the dock and loading equipment at the Dixie Crystal sugar plant on the southeast bank of the site, the barges, ships, and dry docking facilities on the northwest bank, and the Horton scrap metal facility on the northwest bank." Other magnetic anomalies may have been the result of known geologic conditions.

The structural remains of a wooden scow were also noted near the survey area but did not produce a magnetic signature. The remains, designated as site 0014NER, were recorded about two-thirds of the distance between the Dixie Crystal Sugar dock's northern dolphin and the east bank of the river adjacent to the dock.

In May 1982 Ocean Survey, Inc., was asked to survey an addition to the proposed turning basin for the American Coal Exporting Company. Within the new survey area, a northern extension to the previous area, a total of four additional magnetic anomalies were detected. Three of the four anomalies were determined to be of modern origin, possibly associated with the recent dredging. The identity of the remaining anomaly was questionable and determined to be either associated with the dredging activities or two historic vessels known to have been lost near the entrance to Smith Creek (OCS 1981).

Cultural Resources Survey of a Portion of the Northeast Cape Fear River and Report on the Test Excavation to Evaluate the Steamship *Spray*, Archaeological Research and Survey and North Carolina Underwater Archaeology Unit, Alan Saltus, Principal Investigator, 1982.
Investigation of the proposed ship-turning basin in the Northeast Cape Fear River just north of the Hilton railroad bridge continued in 1982 under the supervision of Alan Saltus. The first phase, completed in 1981 by Ocean Surveys, Inc., accomplished both a historical overview and a magnetic survey. Twelve of the thirty-six magnetic anomalies identified during the 1981 survey required additional investigation. Five of those areas were in the dredge impact zone and seven were situated in areas that were likely to be affected by the dredge cut (indirect impact). Under contract, Atlantic Salvesen, Inc., then representing the American Coal Exporting Company of Wilmington, planned to visually inspect, or probe, each of the twelve areas and determine their cultural significance. This second phase was carried out by Alan Saltus for Atlantic Salvesen, Inc., and underwater archaeologists from the North Carolina Division of Archives and History (Saltus 1982:1-3).

During the investigation of the twelve magnetic targets, all but one were found to be either modern and/or insignificant cultural material. The remaining target, Anomaly K, proved to be the remains of a mid-nineteenth-century side-wheel steam vessel. The vessel, referred to as the Band Wreck because of pronounced iron straps around the hull, sank near the eastern shore of the river in 17 feet of water between the Hilton bridge and Smith Creek (Saltus 1982:3,66).

The investigators followed up locating the wreck, now designated as 0009NER, with Phase Three, "designated to investigate the limited remains of the steamboat by documenting and, where possible, reconstructing the vessel's structure, recovering the remaining portions of the steam plant, recording observations regarding the environmental setting and site dispersion, analyzing and identifying the activity or specialty areas, and recovering a representative sample of the artifactual material remains." The preserved length of the wreck measured 133 feet from stem to stern along the keel line. One horizontal slide-valve steam engine was found still lying in the wreck. Another engine and the boiler had been previously removed. The most prominent feature of the site, the iron straps or bands similar to the hoops on a barrel, provided the researchers with the possible identity of the vessel. According to Wilmington historian James Sprunt, a locally wrecked steamboat called the *Spray* had been "shaped like a barrell, hooped up on the sides." A 1891 newspaper article and Corps of Engineers salvage records described raising the boiler and engine from the sunken steamer *Spray* located north of the bridge and provided confirmation that the Band Wreck was indeed the steamboat *Spray* (Saltus 1982:73; Lawrence 1987:5; Sprunt, 1896:35; Wilmington Star, October 23, 1891;Corps of Engineers Annual Report 1892:1153).

Williams Coal Export Terminal Submerged Cultural Resource Remote Sensing Survey, Tidewater Atlantic Research, 1982.

In early 1982 the Williams Coal Exporting Company contracted Tidewater Atlantic Research to conduct a magnetometer investigation at its terminal on the Cape Fear River prior to planned development. Between January 22 and 25, 1982, Tidewater conducted a remote sensing magnetometer investigation at the survey area, approximately 2.75 nautical miles northeast of Southport. Three areas were surveyed southwest of Snows Marsh and Horseshoe Shoal. The first area lay southeast of Snows Marsh Channel and immediately west of the Horseshoe Shoal Channel and the Lower Snows Marsh Channel range markers. The second area was immediately northwest of the Snows Marsh Channel. The third area lay west of Snows Marsh, near the mouth of Walden Creek.

Six anomalies were identified during the magnetometer survey of the Williams Coal Exporting Terminal area. Tidewater recommended only three magnetic targets—one east of Snows Marsh Channel and the other two west of the channel—for additional investigation. Maximum values for those three anomalies ranged from 40 to 100 gammas. The remaining three targets were determined to be of no significance (TAR 1982).

Civil War Era Fortifications Located at the Carolina Beach Borrow Area, Richard Lewis, Principal Investigator, 1982.
Following the survey conducted by Archaeological Research Consultants at the Carolina Beach Borrow Area in 1981, the Corps of Engineers contracted archaeologist Richard Lewis to conduct limited testing of the Civil War-period "Bullet Trench" within the borrow area. Nearly 90 percent of the trench had been previously destroyed by borrow pit excavations. Lewis excavated most of the remaining section of trench and reported his findings in the 1987 Envirospere Company's Historic Preservation Plan for MOTSU (Lewis 1982).

Diver Hands-on Cultural Resource Assessment of Selected Magnetic Anomalies at the North Wharf, (MOTSU), U.S. Army Corps of Engineers, Richard Anuskiewicz, Principal Investigator, 1983.
In April 1983 the U.S. Army Corps of Engineer Districts of Wilmington and Savannah conducted a proton magnetometer survey and diver assessment of selected areas at MOTSU. Expansion dredging proposed by MOTSU included (1) a section of the old northern channel extending from the north wharf to the Cape Fear River channel, (2) a turning basin at the intersection of the northern channel and the Cape Fear River, and (3) a connecting channel between the south and central wharves. Twenty-eight magnetic targets were identified with a broad range of magnetic intensity. Divers located and inspected twenty of the twenty-eight targets. All anomalies were found to be associated with modern marine or terrestrial debris (USACOE 1983).

Cultural Resource Survey: Reeves Point, Proposed Disposal Area 5 and Disposal Area 2 Project Areas, MOTSU, Cultural Heritage Research Services, Inc, Ted Payne, Principal Investigator, and Ann Brown, 1983.
During 1983 Cultural Heritage Research Services (CHRS) surveyed three areas at MOTSU: Reaves Point, Disposal Area 2, and Disposal Area 5. CHRS recorded twenty historic sites at Reaves Point and the proposed Disposal Area 5. No sites were found in Disposal Area 2. Sites identified in other areas included nine tar kilns, two earthen features (described as river access ramps), and nine sites identified as possible residence sites. CHRS determined that four of the twenty sites met the requirements of the National Register of Historic Places. The State Historic Preservation Office did not concur with Payne and Brown's conclusions that residence sites (31BW407 and 31BW310), and two tar kilns (31BW401 and 31BW409), were eligible and requested further documentation. As a result, Envirosphere Company conducted additional investigations of the sites in 1987 as part of the MOTSU Historic Preservation Plan (CHRS 1983).

Wilmington Historic District Riverfront Survey, North Carolina Underwater Archaeology Unit, 1983.

In June and July of 1983 the Underwater Archaeology Unit of the North Carolina Division of Archives and History spent two weeks documenting wrecked and abandoned vessels in the Cape Fear River adjacent to Wilmington. Although that section of the river is within the boundaries of the existing Wilmington National Register Historic District, no previous attempt had been made to inventory those vessel remains, or other archaeological sites, along the shoreline or beneath the water.

The methodology employed during the 1983 survey consisted primarily of a visual inspection of the near-shore portions of the river at low tide. In addition, the UAU examined three submerged sites reported by local divers. For each wreck located, the UAU investigators completed an underwater archaeological site form and recorded the site dimensions, condition, environmental setting, and general description.

The project survey area incorporated both sides of the Cape Fear River at Wilmington. On the east, or Wilmington, side of the river, the shoreline had been almost entirely bulkheaded, and the river bottom dropped sharply away to the channel. On the opposite side of the river from Wilmington, along Eagles Island, the shoreline was heavily vegetated and the land quite low. The bottom on the Wilmington side of the river was composed of a thick mud with a gradual slope away from the shore toward the channel. As a result, more of the river bottom is exposed at low tide on that side of the river.

Of the thirty-seven sites documented during the 1983 survey, thirty-four were found along the uninhabited shoreline of Eagles Island. All of those sites were at least partially buried in mud sediment, and many could be seen only at low tide. The other three vessels examined during the survey—sites 0002CFR, 0003CFR, and 0022CFR—were located in 15 to 20 feet of water on the Wilmington side of the river.

The condition of the wrecks varied greatly. Some, though weathered, were virtually intact, while others consisted of only the bottom part of the hull. Many of the wrecks still contained their ship's equipment, such as steam and diesel engines, pumps, boilers, fuel tanks, iron bitts, cleats, and chocks. Much of that equipment was antiquated or inoperable at the time the vessels were abandoned, accounting for their not being salvaged; however, some evidence indicated that various iron objects and brass fittings had been removed over the years, either for the scrap value or as souvenirs (Lawrence 1985).

Archaeological Test Excavations at Reaves Point, MOTSU, Archaeological Research Consultants, Thomas Hargrove, Principal Investigator, 1984.

During the week of April 9-13, 1984, Archaeological Research Consultants conducted archaeological test excavations on possible earthen mound fortifications and ramps at

Reaves Point, Brunswick County. Planned harbor improvements for MOTSU called for heavy modification of Reaves Point. According to information gathered from historical sources, Reaves Point was the site of the Robert Howe plantation (Sprunt 1896). The earthen mound remants investigated were thought to have been associated with a Revolutionary War battle fought on Howe's plantation. Results of test excavations revealed, however, "no signs that they were built or used as fortifications." ARC also tested two earthen ramp sites (31BW394 and 31BW395) previously identified by Payne and Brown in 1983. The older ramps showed a buried level of burned coal and wood, possibly associated with a steamboat refueling stop. The changes in ownership of Howe's Point (Reaves Point) could not be documented from archival research, although Howe owned Kendall plantation during the time of the Revolution (ARC 1984).

Terrestrial and Marine Archaeological Survey of the Proposed Castle Street Boat Ramp, Wilmington, N.C., Archaeological Research Consultants and Tidewater Atlantic Research, Inc., 1985.
In anticipation of a planned boat ramp to be constructed by the city of Wilmington at the foot of Castle Street, personnel from Archaeological Research Consultants, Tidewater Atlantic Research, and the U.S. Army Corps of Engineers, Wilmington District, conducted a terrestrial and submerged cultural survey on February 8, 1985. The survey area, located within the Wilmington Historic District, had been extensively in use dating back to the 1730s.

The underwater survey within the Cape Fear River consisted of a section 40 by 90 feet in size. The underwater archaeologists inspected transects along the 4-, 9-, and 12-foot bathymetric contours solely by touch, as visibility in the river was nearly zero. No vessel remains, maritime structures, or historic artifacts were present within the submerged survey area. Only modern construction debris used as fill, and a variety of other modern material, covered the bottom.

The terrestrial investigation consisted of the excavation of three large trenches in the proposed boat wash area and its new drain system on the south side of Castle Street. The primary remains documented within the test trenches were associated with the nineteenth-century gas works and its successor facilities. Evidence of the gas works was present in the form of coal dust, concrete slabs, and brick and timber fragments (ARC 1985b).

Archaeological Reconnaissance of the Antenna Facility Expansion, Fort Fisher Air Force Station, New Hanover County, N.C., Wilmington District, U.S. Army Corps of Engineers, Richard Kimmel, Principal Investigator, 1985.
Proposed expansion of the Fort Fisher Air Force Station Antenna Facility threatened a known site (31NH506) previously reported to be the site of a Civil War-period hospital. During 1985 personnel from the U.S. Army Corps of Engineers, Wilmington District, tested an area that included two spatially separate clusters of brick and artifacts

immediately north of the facility compound. Results from the testing revealed that the site had been disturbed by previous antenna facility construction. In 1987 as a part of the MOTSU Historic Preservation Plan, archaeologists from Envirosphere Company revisited the site (Envirosphere 1987).

Horseshoe Shoal Survey and CSS *Raleigh* Wreck Location, Wilmington District, U.S. Army Corps of Engineers, 1985.

During 1985 the U.S. Army Corps of Engineers, Wilmington District, conducted a magnetic survey of a portion of Horseshoe Shoal Channel in order to document the position of the suspected wreck of the CSS *Raleigh*. A magnetic anomaly indicated the location of the wreck centered at Latitude 33°57'25.7", Longitude 77°57'8". The Corps stated that the wreck was no "closer than 923 feet to the existing navigation channel and that it is currently well consolidated." The distance from the channel posed no threat to the wreck, and further investigations were not warranted (USACOE letter to SHPO 1985).

Archaeological Survey at Brunswick Town for the Wreck of the *Fortuna*, North Carolina Underwater Archaeology Unit and Denny Breece, 1985.

On April 3, 1985, the North Carolina Underwater Archaeology Unit assisted local shipwreck enthusiast Denny Breece in conducting a magnetometer survey at Brunswick Town for the wreck of the Spanish sloop *Fortuna*, which sank in 1748. The UAU ran several closely spaced transect lanes from the historic ruins of Brunswick Town to offshore. Diver investigation of one target yielded the presence of a late seventeenth- or early eighteenth-century cannon. No other cultural material was found.

On May 3, 1985, UAU personnel recovered from the river the cannon discovered during the remote sensing survey. The cannon was completely exposed on the bottom and not associated with any visible or detectable wreckage. After removal of the calcareous encrustation, the gun weighed 820 pounds. Because of deterioration of the surface, no markings or inscriptions were visible. The diameter of the bore measured approximately 3.19 inches, and the length of the tube, from the tip of the muzzle to the end of the base ring, measured 72 inches. The length and diameter indicated that the gun was a 4-pounder; however, the weight was less than that reported for eighteenth-century guns of that caliber. Loss of weight through oxidation and corrosion could account for that discrepancy. After conservation at the UAU laboratory the cannon was placed on display at Brunswick Town State Historic Site. A direct association between the cannon and the wreck of the *Fortuna* could not be made (UAU 1985).

Archaeological Survey of a Section of the Phase II Development Area, Bald Head Island, Archaeological Research Consultants, 1985.

During August 1985 Archaeological Research Consultants, Inc., conducted an archaeological reconnaissance survey of a 150-acre tract of land on Bald Head Island for Bald Head Island, Ltd., of Southport. The development corporation planned construction on the eastern half of the island, along the marsh of Bald Head Creek. ARC archaeologists placed shovel tests along transects through the heavily vegetated area. Exposed ground surfaces were also examined. None of the shovel tests revealed any cultural artifacts (ARC 1985a).

Wilmington Harbor Side-Scan Sonar Survey, North Carolina Underwater Archaeology Unit and Cape Fear Technical Institute, 1986.
On March 12 and 13, 1986, a staff member from the Underwater Archaeology Unit assisted students from the Cape Fear Technical Institute in conducting a side-scan sonar survey along the Wilmington waterfront. Although results of the survey were never described in written form, the strip chart data show documentation similar to the UAU shoreline survey conducted in 1983 (UAU 1986a).

Archaeological Investigations at Military Ocean Terminal, Sunny Point, Thunderbird Archeological Associates, 1987.
The Envirosphere Company contracted Thunderbird Archeological Associates (TAA) during 1987 to conduct an archaeological investigation of sixteen previously identified sites at MOTSU as part of its Historic Preservation Plan. In addition, TAA conducted field inspections at Fort Anderson, Battery Lamb, and two unidentified sites. Investigations were generally limited to gathering data necessary to determine if the sites were potentially eligible for the National Register of Historic Places. "Two sites were found to meet the criteria for eligibility, twelve sites were listed as potentially eligible." The remaining previously identified archaeological sites did not meet the National Register criteria (Envirosphere Company 1987).

Military Ocean Terminal Sunny Point, North Carolina: Historic Preservation Plan, Envirosphere Company, 1987.
In order to assist MOTSU personnel in compliance with the National Historic Preservation Act of 1966, the Envirosphere Company completed a historic Preservation Plan in 1987. The MOTSU Historic Preservation Plan incorporated four parts: a) a summary of the natural and cultural history of the MOTSU vicinity, b) an inventory of historic properties under MOTSU jurisdiction, c) methods and procedures for completing the inventory process, and d) detailed descriptions of the tasks needed to complete MOTSU's historic preservation compliance obligations. Envirosphere Company identified eighty-nine known and potential historic properties on MOTSU lands. Only two of MOTSU properties—Fort Fisher and Fort Johnston—were listed on the National Register of Historic Places (Envirosphere Company 1987).

Archaeological Reconnaissance of the Wilmington Harbor/Northeast Cape Fear River, Tidewater Atlantic Research, 1987-1988.
In anticipation of improving navigation channels in the Cape Fear and Northeast Cape Fear River, the U.S. Army Corps of Engineers, Wilmington District, contracted Tidewater Atlantic Research (TAR) of Washington, North Carolina, to carry out a series of remote sensing surveys designed to identify submerged cultural resources. In addition, TAR conducted diving investigations of remote sensing targets and previously identified vessel remains to assess the impact of proposed project activities. Those investigations were carried out during the period June 1987 to June 1988.

During 1987 the investigations included both the Cape Fear and Northeast Cape Fear Rivers. TAR carried out a side-scan sonar survey in the channel along the Fourth East Jetty channel of the Wilmington Harbor. The Fourth East Jetty channel extends northward to the southern end of the North Carolina State Ports Authority docks. The second area of investigation consisted of the channel alignments that extend north from the Cape Fear Memorial Bridge to the N.C. 133 bridge. Target sites examined during the project lay on both the east and west sides of the present navigation channel between Church and Market Streets. In 1988 the Corps extended the survey area to include the Northeast Cape Fear River from the N.C. 133 bridge to a point 750 feet north of the Hilton railroad bridge. Target sites examined during the 1988 extension of the project were identified as a small sailing vessel that lay in the navigation channel immediately north of the Dixie Cement dock and a modern barge and concentration of debris that lay on the east side of the channel. North of the Hilton railroad bridge Tidewater located the remains of the *Spray* within the channel alignment east-southeast of day marker G-1 on the western side of the river.

Tidewater discovered the remains of nine vessels as a result of the remote sensing examination. Five of those sites were the previously identified remains of the side-wheel steamer *Spray* (0009NER), the stern-wheel steamer *A. P. Hurt* (0003CFR), the gas screw *Blanchard* (0002CFR), the double-ended gas ferry *John Knox* (0016CFR), and the Skinner's Dock Wreck (0022CFR). Two additional wrecks were identified as barges; the first, Work Barge (0063CFR), proved to be a wood vessel, and the second, Modern Steel Barge (0038NER), was identified as a welded hull. Archaeologists identified the remaining wrecks as small workboats. One proved to be a gas-powered deadrise vessel, Workboat Number 2 (0062CFR), and another that of a wooden sailing vessel, Hilton Bridge Wreck (0037NER). Of those sites, the *A. P. Hurt,* Workboat Number 2, and the Hilton Bridge Wreck were found to be within the area of potential project impact.

The *A. P. Hurt* and Hilton Bridge Wreck are listed on the National Register of Historic Places. A modification of the dredging limits incorporated into the project design eliminated impacts to the steamer *A. P. Hurt* and Workboat Number 2. The Hilton Bridge Wreck, well within the proposed project boundaries, would be affected by channel improvements. In July 1988 the Underwater Archaeology Unit of the Division of

Archives and History informed the Corps of a sunken tenth vessel, Walker Barge (0068CFR), in the project area. The Corps determined that the vessel lay below the maximum depth of project-related dredging (TAR 1988).

Archaeological Inventory Survey and National Register Evaluations: Military Ocean Terminal, Sunny Point Buffer Zone, New Hanover County, Carolina Archaeological Services, 1990.

Carolina Archaeological Services completed an archaeological survey of the entire MOTSU Buffer Zone in New Hanover County (2,013 acres) in 1990. Investigations conducted as part of the MOTSU Historic Preservation Planning documented 80 archaeological sites and 21 isolated finds (including 71 prehistoric components and 68 historic components). Of the recorded sites, 32 were considered eligible for the National Register of Historic Places.

Carolina Archaeological Services recorded 22 Civil War-period landscape features such as rifle pits, entrenchments, and artillery emplacements during its inventory survey. In addition, four domestic historic sites, two World War II sites, and one prehistoric site were recorded. As a result of the inventory survey, CAS made recommendations to expand the boundaries of the Fort Fisher State Historic Site to include most of the Civil War sites (CAS 1990).

Remote Sensing Investigation of Six Turns and Proposed Passing Lanes, Tidewater Atlantic Research, 1990.

At the request of the U.S. Army Corps of Engineers, Wilmington District, Tidewater Atlantic Research carried out a remote sensing investigation at six turns and three ranges within the lower Cape Fear River. The proposed lower Cape Fear improvements included widening six turns and the creation of "passing lanes" along three consecutive reaches. North to south, the ranges investigated included the Lower Lilliput Range, the Upper Midnight Channel Range, and the Lower Midnight Channel Range. TAR conducted a side-scan sonar survey along 400 feet of the western side of the existing Midnight Channels. Turns from north to south investigated were:

Turn 1 Located between the Upper Brunswick Range and the Lower Brunswick Range, approximately 4.5 miles below the U.S. 74/76 Highway Bridge over the Cape Fear River at Wilmington.

Turn 2 Located between the Lower Brunswick Range and Upper Big Island Range, approximately 6.75 miles below the U.S. 74/76 Highway Bridge over the Cape Fear River at Wilmington.

Turn 3 Located between the Upper Big Island Range and the Lower Big Island Range, approximately 7.25 miles below the U.S. 74/76 Highway Bridge over the Cape Fear River at Wilmington.

Turn 4 Located between the Lower Big Island Range and the Keg Island Range, approximately 8 miles below the U.S. 74/76 Highway Bridge over the Cape Fear River at Wilmington.

Turn 5 Located between the Upper Lilliput Range and Lower Lilliput Range, approximately 11.4 miles below the U.S. 74/76 Highway Bridge over the Cape Fear River at Wilmington.

Turn 6 Located between the Horse Shoe Shoal Channel Range and the Snow Marsh Channel Range, approximately 21.2 miles below the U.S. 74/76 Highway Bridge over the Cape Fear River at Wilmington.

Previous investigations of the project area by the Corps of Engineers had documented 68 anomalies. The Corps contracted Tidewater Atlantic Research (TAR) to assist in identifying the material that generated the anomalies and conduct additional magnetic and acoustic investigations. TAR conducted fieldwork from October 8 to 16, 1990. Tidewater personnel surveyed with a side-scan sonar the entire project area and reexamined with a magnetometer portions of Turns 2, 3, and 5. A total of 28 acoustic images were correlated with magnetic targets identified by the Wilmington District survey. TAR identified a total of 15 new magnetic and/or acoustic targets.

Analysis of the acoustic and magnetic data obtained by Tidewater Atlantic Research resulted in the identification of a total of 83 targets in the six turns and three ranges. Of the 83 targets, 68 had been identified by the Wilmington District during its magnetometer survey. Of the 68 magnetic targets identified by the Wilmington District, Tidewater Atlantic Research confirmed 28 with sonar. The magnetic investigation conducted by TAR in Turns 2, 3, and 5 confirmed and refined targets previously located by the Corps of Engineers and identified 4 new magnetic anomalies. Five additional targets were identified using sonar. TAR recommended eight targets for additional investigation, on the basis of their signature characteristics (TAR 1990a).

An Underwater Archaeological Investigation of the Hilton Wreck, Wilmington, N.C., Tidewater Atlantic Research, 1990.

Discovered by Tidewater Atlantic Research (TAR) on April 23, 1988, in the Northeast Cape Fear River, the Hilton Bridge Wreck was a small, nearly complete nineteenth-century vessel. Unfortunately, on February 3, 1989, an oceangoing tug and barge dragged a towing bridle and fouled the wreck, tearing away the transom, cockpit combing, and much of the surviving deck structure. As a result of the incident the U.S. Army Corps of Engineers contracted with TAR to assess the damage done to the vessel and to determine what measures could be taken to protect the wreck from the regular maintenance and proposed dredging of the channel. Additional objectives of the investigation included the recovery of artifacts threatened by the damage and determination of the vessel's historic and archaeological significance. TAR conducted fieldwork from March 5 to 10, 1990.

Investigations at the site of the Hilton Bridge Wreck confirmed that the vessel represented the remains of a small unidentified schooner. Construction characteristics strongly suggested that the vessel had a mid-nineteenth-century date of construction. Loss of the schooner may have been associated with a Wilmington fire that occurred on February 21, 1886, and which destroyed a number of buildings, docks, and vessels along the Cape Fear waterfront. As a consequence of the damage sustained by the incident involving the tug, the Hilton wreck was found to be rapidly deteriorating. Tidewater Atlantic Research recommended immediate documentation and/or recovery of the vessel (TAR 1990b).

Archaeological Investigations at Fort Johnston, Fort Anderson, The Robbins Plantation, and Battery Lamb: Military Ocean Terminal, Sunny Point, North Carolina, The Cultural Resource Group, 1991.

Between November 4 and 22, 1991, staff from The Cultural Resource Group of Louis Berger & Associates carried out field investigations at four archaeological sites located on the MOTSU Brunswick County property. The contracted archaeologists gathered documentation at Fort Anderson (31BW376), the Robbins plantation (31BW393), Battery Lamb (31BW557), and Fort Johnston (31BW558) in order to determine if those properties were potentially eligible for listing on the National Register of Historic Places under Criterion D, the potential to provide important information on the history or prehistory of North Carolina.

Fort Johnston, a coastal defense fortification dating from the eighteenth and nineteenth centuries, contained a complex stratigraphic record and evidence of demolished structures and occupational debris. That site clearly appeared to meet National Register eligibility requirements. Fort Anderson, a Confederate earthwork dating to the Civil War, included the extant and well-preserved flanking defenses for a coastal fort and possible barracks remains, as well as subsurface evidence of a Woodland-period prehistoric occupation. Fort Anderson also appeared to meet Criterion D requirements for inclusion in the National Register. The Robbins plantation, a mid-nineteenth-century farmstead, included structural remains of a farmhouse and evidence of yard-area trash disposal. The property likewise appeared to fulfill the conditions for inclusion in the National Register. CRG was unable to confirm the location by testing at the reported site of Battery Lamb, a coastal defense gun emplacement dating to the Civil War. The property reported as the site of the former Battery Lamb did not appear to be eligible for listing in the National Register (CRG 1992).

A Submerged Cultural Resource Survey for Channel Improvements at the Center and South Wharves and Entrance Channels at MOTSU, Tidewater Atlantic Research, 1992.
In anticipation of improvements at the MOTSU turning basin and channels, Tidewater Atlantic Research (TAR) was contracted by the U.S. Army Corps of Engineers to conduct a submerged cultural resource survey. Proposed improvements at MOTSU included deepening and widening the existing south and central basins and their entrance channels, depositing of dredged material in existing upland areas, and disposal within the Carolina Beach Borrow Site. Disposal areas had been previously used or received archaeological clearance. The proposed deepening and widening within MOTSU harbor would impact previously unsurveyed areas of the Cape Fear River.

On October 15-16, 1992, TAR carried out a magnetic and acoustic remote sensing investigation. TAR located two targets directly across from the central wharf and one large, multicomponent magnetic signature with corresponding sonagram evidence directly opposite the southern end of the central wharf. Divers investigated the targets between December 1 and 6, 1992. Two targets proved to be modern debris associated with shipping and navigation at MOTSU. The remaining target could not be located by systematic probing to depths 10 feet below the bottom surface (TAR 1993a).

Town Creek Survey, North Carolina Underwater Archaeology Unit, 1992.
In 1992 staff personnel from the Underwater Archaeology Unit conducted a magnetometer survey of the lower portion of Town Creek. The survey and site examination were conducted with four goals in mind: 1) relocation and testing of five targets first identified during a 1980 survey; 2) documenting a possible landing associated with seventeeth-century Charles Towne; 3) inspection of the landing at the Brick Kiln site identified by Stanley South in 1963; and 4) to identifying and documenting any new targets within the survey area.

An attempt was made to relocate three of the five targets identified in the 1980 survey. Although signatures from two of the targets were again found with the magnetometer, the source of the anomaly could not be located upon diver inspection. The third target could not be relocated with the magnetometer. No magnetic signatures were present to suggest the possible landing site at Charles Towne.

Diver inspection of the landing at the Brick Kiln site revealed the bottom to be completely covered with bricks. Divers noted no other archaeological material. Finally, the UAU survey documented two new magnetic targets. At Site A diver investigation revealed the presence of a modern solid iron cylinder protruding from the bottom clay. Investigators suggested that the location of the anomaly at Site A could be the same target 5 noted in 1980. They based their assumptions upon a similar intensity and the likelihood that target 5 had been mislabeled on the earlier location map. Divers did not conduct an investigation at Site B because of the presence of alligators (UAU 1992a).

Shoreline Survey of the Northeast Cape Fear River, North Carolina Underwater Archaeology Unit, 1992.

On April 14, 1992, Mark Wilde-Ramsing of the Underwater Archaeology Unit and Richard Kimmel, archaeologist with the U.S. Army Corps of Engineers, Wilmington District, examined the shoreline of the Northeast Cape Fear River above Point Peter. The area inspected was roughly delineated as running from the boundary of the Bordeaux Marine Salvage and Construction Company north to the southern boundary of the Wilmington Shipyard. At the time of the survey the tide was extremely low and offered good shoreline visibility.

The shoreline in general contained evidence of extensive post-World War II marine salvage and vessel repair activities. Wire cable, dredge pipes, and vessel parts littered the shoreline. Only in one area, the vicinity of the Winner Marine Salvage and Construction Company, were historic remains found. The remains of six vessels were briefly examined and a sketch map of their locations made. The UAU proposed to examine each of those vessels using both archaeological testing and historical research that could determine their nature, including age, type, function, and condition. Based on those findings, each would be assessed to determine whether they were eligible for listing on the National Register of Historic Places, individually or collectively (UAU 1992b).

Baker's Kids Expedition to the Winner Shipwrecks, Northeast Cape Fear River above Point Peter, 1992.

In late 1992 the Underwater Archaeology Unit cooperated on an educational program with a local class of students known as "Baker's Kids" to conduct testing on three abandoned vessels located along the western shoreline of the Northeast Cape Fear River approximately 1,600 feet above the tip of Point Peter. Those sites were among six shipwrecks that had been discovered in April 1992 during a shoreline survey of the area to be impacted by Corps of Engineers' proposed turning basin improvements (Wilde-Ramsing 1992). The shipwrecks were identified as: UAU (0041NER), Winner Skiff (formerly Point Peter skiff); UAU (0044NER), Winner Centerboard Wreck (formerly Point Peter Centerboard Wreck); and UAU (0045NER), Token Wreck (formerly Point Peter Bow Wreck).

On November 19, 1992, a group of eleven eighth-grade students under the direction of Charlie Baker, Pender County academic enrichment instructor, accompanied UAU staff members to the Winner property. With students divided into three teams and an adult assisting them, the groups conducted a basic examination and documentation of the shipwreck sites. Each team was assigned a particular wreck, at which they used probes and limited shovel testing to delineate the extremities of the site, discern key structural features, collect wood samples from various structural components, and retrieve associated artifacts.

Underwater Archaeological Excavation and Data Recovery at the Hilton Wreck, Northeast Cape Fear River, Wilmington, North Carolina, Tidewater Atlantic Research, 1992.
The Hilton Wreck is a small nineteenth century vessel located by Tidewater Atlantic Research (TAR) during a remote sensing survey carried out on the Northeast Cape Fear River at Wilmington, North Carolina for the U.S. Army Corps of Engineers (USACOE), Wilmington District. Between April 1988 and June 1992, TAR carried out a series of investigations at the site. That research was designed to determine the wreck's potential for National Register eligibility and mitigate impacts associated with continued operation of an existing navigation project, channel maintenance, and proposed dredging of the channel to a depth below that of the wreck. Data produced by investigation of the wreck confirmed that the vessel remains were those of a small centerboard schooner. Evidence from the wreck indicated that the vessel was designed and constructed in the mid-nineteenth century for navigation in shallow coastal waters. Design and construction characteristics indicate that the schooner was built during the late 1840s or 1850s. The hull was full forward with minimal deadrise amidships and a round chine formed by oak compass timbers. The stern was constructed over exposed deadwood that appeared to have supported a square transom. The bow of the Hilton Wreck was decorated with a plain fiddlehead that reflected designs popular during the mid-nineteenth century. A collection of diagnostic artifacts were recovered from the wreck site. They included a dated cast iron range, an embossed glass bottle, fragments of a navigation lantern, and a bilge pump that contained identifiable makers marks. The artifact assemblage associated with the wreck confirmed that it was lost in the 1880s. While the wreck could not be identified, it is possible that the vessel was lost during a fire that swept the Wilmington waterfront in 1886 (TAR 1994a).

A Submerged Cultural Resource Survey of Bald Head Shoal Channel, Tidewater Atlantic Research, 1993.
Based upon its proposed plans to deepen the Bald Head Shoal Channel from 42 feet to 46 feet, the U.S. Army Corps of Engineers contracted Tidewater Atlantic Research (TAR) to conduct a remote sensing survey of the areas to be dredged. From January 4 to 8, 1993, TAR conducted a magnetic and side-scan sonar survey at the Bald Head Shoal Channel along the east and west channel prisms and at a 2.08 mile extension to the channel. The investigators located four targets in the east survey area and three in, or adjacent to, the west survey area. No targets were located in the channel extension. One potentially significant target in the east survey area required further investigation. Between March 9 and 12, 1993, TAR personnel carried out reconnaissance dives to identify the material generating the magnetic and acoustic target in the east survey area. Material generating the target signatures proved to be modern debris associated with a Bald Head Channel navigational reference (TAR 1993b).

A Remote Sensing Survey and Diver Investigation at Wilmington Harbor Offshore Fishery Enhancement Structure, Vicinity of Wilmington, North Carolina, Tidewater Atlantic Research, 1994.
In 1994 the U.S. Army Corps of Engineers (USACOE), Wilmington District, proposed to expand an area southeast of the existing Wilmington Ocean Dredged Material Disposal Site. That area, known as the Fishery Enhancement Disposal Site, would be utilized for the disposal of rock dredged from the Bald Head Shoal Channel. In order to determine proposed project effects on submerged cultural resources, the USACOE contracted with Tidewater Atlantic Research (TAR) of Washington, N.C., to locate, identify, and assess the significance of any underwater cultural material in the proposed disposal area. TAR designed and implemented a remote sensing operation for the project area. The investigation involved the systematic collection of magnetic and acoustic data from the survey area. Two magnetic targets, BH-01 and BH-02, were located. Target BH-01 also had an associated acoustic signature. The anomalies had signature characteristics that compared favorably with those of single ferrous objects. However, since both targets were detected in multiple lanes they were recommended for additional investigation. The USACOE modified the contract with TAR and requested that a diving assessment be made of the two anomalies. Divers confirmed that the signatures were generated by modern debris. TAR recommended no additional investigation of the targets in conjunction with the proposed project (TAR 1994b).

Archaeological Remote Sensing Survey at Smith Island Channel, Cape Fear River, Wilmington Harbor, North Carolina, Tidewater Atlantic Research, 1995.
The U.S. Army Corps of Engineers (USACOE) proposed in 1995 to deepen the Smith Island Channel of the Cape Fear River by two feet. Deepening of the channel would increase the channel side slope by 10 feet on the east side and 210 feet on the west side. An existing channel widener was in place on the west side of the channel. In order to determine the effects of the proposed deepening project and evaluate the impacts of the existing channel widener on significant underwater cultural resources, the USACOE contracted with Tidewater Atlantic Research, (TAR) to conduct a remote sensing survey in the proposed dredging areas. An additional area was included in the survey on either side of the channel as a result of a modification to the contract. The field investigation conducted on March 27-28, 1995, involved the systematic collection of magnetic and acoustic data from the survey areas. TAR identified eleven targets during the investigation, all on the west side of the channel. Of those targets, SI-07, SI-08, SI-09 and SI-10 were found to generate multiple component magnetic signatures characteristic of shipwrecks, structures, or scatters of ferrous debris. The remaining targets were found to generate magnetic signatures with characteristics that compared favorably with single ferrous objects. Only, one target, SI-10, exhibited an acoustic signature associated with it. TAR recommended additional investigation of the four multiple-component magnetic signature targets (TAR 1995a).

Underwater Archaeological Assessment of Four Target Locations at Smith Island Channel, Wilmington Harbor, North Carolina, Tidewater Atlantic Research 1995.
In response to recommendations by Tidewater Atlantic Research (TAR) that four targets previously identified in the Smith Island Channel of the Cape Fear River should be investigated, the U.S. Army Corps of Engineers (USACOE) contracted TAR to conduct diver investigations on the four anomalies. Fieldwork was carried out by TAR between May 29 and June 1, 1995. None of the targets were determined to be significant submerged cultural resources. In addition, all four of the targets were found to be associated with abandoned power cable located adjacent and parallel to the western channel toe. No further investigation of those anomalies was recommended by TAR in conjunction with the proposed channel improvements (TAR 1995b).

Underwater Archaeological Assessment of Eight Magnetic Anomaly Locations within the Wilmington Harbor Channel Widening Project Area Below Wilmington, North Carolina, Tidewater Atlantic Research, 1995.
As part of planned improvements to the navigation channel of Wilmington Harbor, the U.S. Army Corps of Engineers (USACOE), Wilmington District conducted studies of the feasibility of dredging to widen turns and create passing lanes in the Cape Fear River shipping channels below Wilmington, North Carolina. To assess the proposed project's impacts on submerged cultural resources, the USACOE contracted with Tidewater Atlantic Research (TAR) to conduct a remote sensing investigation of six turns and three ranges below Wilmington. That investigation, conducted between October 8-16, 1990, identified 15 magnetic and 28 acoustic targets in the project area in addition to 68 targets previously identified during a remote survey conducted by the Wilmington District. Eight of the new targets were recommended for additional research. In order to evaluate the significance of those targets and to assess the potential impacts from the proposed project, the USACOE requested that TAR conduct a target relocation and diver investigation of targets: T1-2, T2-4, LE-B, LW-A, UMN-B, UMS-A, UMS-C, and LM-B. TAR carried out reconnaissance dives to identify the material generating the potentially significant magnetic and acoustic signatures from May 15-26, 1995. Investigation of the eight anomalies revealed that all of the targets were the result of modern debris or natural features. Four of the targets, T1-2, LW-A, LE-B, and UMS-C were the result of geological features: coquina outcrops or scours. Two targets, T2-4 and LM-B, contained iron objects which proved to be modern. The final two objects, UMN-B and UMS-A, contained both natural and man-made features. While some of the rock found during the investigation was noted to be non-native to the region, additional probing uncovered no evidence of associated cultural material. Since all of the targets were the result of modern debris or natural features, TAR recommended no further investigation of the targets (TAR 1995c).

Fieldwork Methodology

The Cape Fear River Comprehensive Study (CFRCS) was designed with the primary intention of compiling an inventory of shipwrecks or other submerged cultural sites located in the Cape Fear and Northeast Cape Fear Rivers from Wilmington to the river's mouth. The U.S. Army Corps of Engineers (USACOE) and the Department of Cultural Resources achieved a multitude of benefits, most of which resulted from increased communication early in the planning process, as the result of a cost-sharing partnership. This was especially true in the approach to the archaeological survey, in which two aspects of the Cape Fear River Comprehensive Study returned unforeseen benefits. The first of these was the joint involvement of the Underwater Archaeology Unit (UAU) of the North Carolina Division of Archives and History (NCDAH) and the U.S. Army Corps of Engineers in the scoping and conduct of the survey, and the second was the mutual attempt to make the archaeological survey true to the notion of comprehensiveness by extending the study area beyond what might normally be designated if only the primary impact area resulting from deepening and increased slope along portions of the channel were inspected.

In recognition of the historical importance of the Cape Fear, and under the established planning process, the Wilmington District would normally consult with the NCDAH and the UAU during the preparation of a Scope of Work and the selection of an archaeological contractor. Under the comprehensive study, however, the role of the UAU was greatly expanded, since it was provided with the opportunity to provide in-kind service that would be counted as part of the state's contribution to total study cost. That service included detailed archival documentation, a remote sensing survey, archaeological diving, analysis and evaluation of the research methods and the discovered resources, and the preparation of a professional report. That high level of participation was possible because the UAU had the technical equipment and range of expertise to accomplish the survey and because the National Historic Preservation Act and the Abandoned Shipwreck Act charges it with developing and implementing survey priorities and evaluation criteria. The Abandoned Shipwreck Act also gives the state ownership and custodial responsibility of shipwrecks in its navigable waters. Finally, the UAU's proximity to the project area gave it an unparalleled opportunity to exploit good weather and dive conditions. Nevertheless, some changes were needed to bring that aspect of the proposal to fruition. First, the UAU and other state agencies and administrative offices had to establish a clear policy and procedure to assure that dedicated survey funds were made available to the UAU in a timely manner; following that, the UAU had to acquire additional equipment and personnel to meet the requirements that the project added to its normal work load. Finally, the UAU and the Wilmington District's Navigation Section had to develop schedules and agreements for the use of district survey vessels and remote sensing equipment.

As far as the research design itself was concerned, both the UAU and the USACOE desired to remain true to the notion of a "comprehensive" survey by breaking the typical pattern of survey only within the confines of predicted and direct project impact. Such an expansion in focus was intended to bring underwater survey standards up to par with those more typically associated with upland site investigations, in which a considerable portion of the research effort is expended on the development of a historical and environmental context. That context develops the central themes against which site significance and research potential will be judged. An attempt was made to organize the archival information in such a way that factors that might bear on the predictability of shipwreck location could be recognized. A closely related goal was the development of a list of historic place-names for various cultural and natural landmarks along the river. This has long been an important need because many place-names have disappeared from common usage and, through the years, map makers have often been inconsistent in their use and placement of place-names. The primary tool for compiling that information was historical map projection—that is, the transfer of historic features from a number of old maps onto modern maps and, where appropriate, a search for those features in the field. That work was an important part of the overall documentation effort. The use of maps allowed the researchers to identify cultural and natural features that might be directly influential in maritime trade and exploration or that might influence the disposition of a shipwreck. Thus, the researchers searched for the locations of landings, plantations, careening grounds, shoals, fortifications, ferry crossings, boat works, and virtually anything else that might conceivably have some relationship to the river and river traffic. The UAU then evaluated all of the information and used it in determining the placement of survey, or priority, areas, with the unrestricted areal coverage giving the research team wide latitude in testing ideas about shipwreck location.

In association with the historical documentation used in the selection of survey areas, the UAU additionally defined the areas with the highest potential for yielding cultural resources based upon environmental review guidelines it had established in 1982. According to the guidelines, a high potential area is defined as:

1. When a known archaeological site or charted historic wreck is present.

-or-

2. When historic research indicates that a project lies in an area with active maritime history, documented vessel losses, or known hazards to navigation. Harbors, major shipping lanes, inlets, and shoals, for example, are likely to be classified as high potential areas.

Therefore, based on the accumulated historical information and the defined criteria for high potential areas from the environmental review guidelines, eleven priority areas with the potential to contain submerged archaeological sites were selected for intensive remote sensing survey and diver investigation **(Figures 39,40,41,42)** (see **Appendix 2A** for Priority Area control points). The Baldhead Shoal Channel and the Cape Fear/Northeast Cape Fear River channel from the Cape Fear Memorial Bridge to the

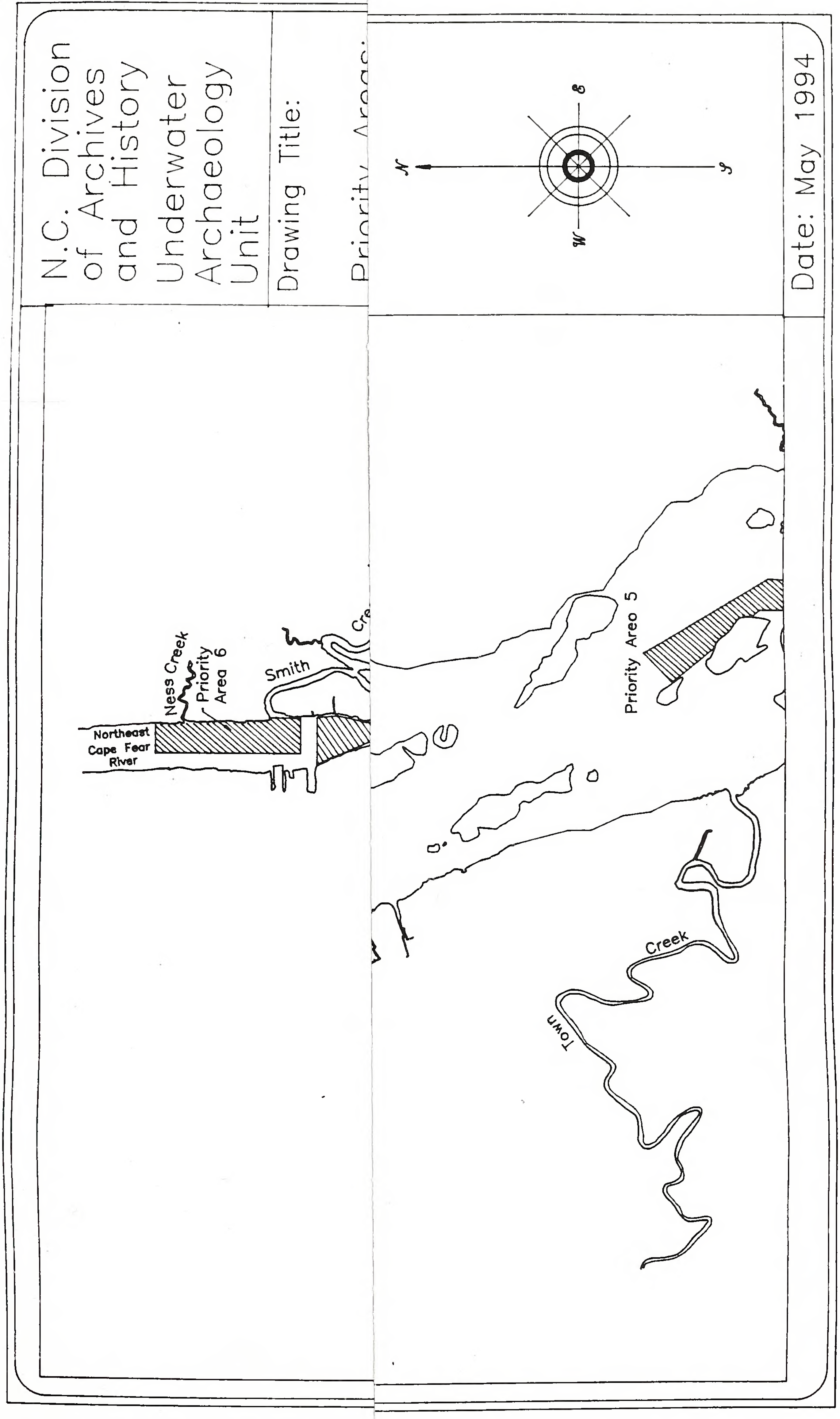
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Figure 39. Priority Areas: Smi

pattern of survey only within the confines of predicted and direct project impact. Such an expansion in focus was intended to bring underwater survey standards up to par with those more typically associated with upland site investigations, in which a considerable portion of the research effort is expended on the development of a historical and environmental context. That context develops the central themes against which site significance and research potential will be judged. An attempt was made to organize the archival information in such a way that factors that might bear on the predictability of shipwreck location could be recognized. A closely related goal was the development of a list of historic place-names for various cultural and natural landmarks along the river. This has long been an important need because many place-names have disappeared from common usage and, through the years, map makers have often been inconsistent in their use and placement of place-names. The primary tool for compiling that information was historical map projection—that is, the transfer of historic features from a number of old maps onto modern maps and, where appropriate, a search for those features in the field. That work was an important part of the overall documentation effort. The use of maps allowed the researchers to identify cultural and natural features that might be directly influential in maritime trade and exploration or that might influence the disposition of a shipwreck. Thus, the researchers searched for the locations of landings, plantations, careening grounds, shoals, fortifications, ferry crossings, boat works, and virtually anything else that might conceivably have some relationship to the river and river traffic. The UAU then evaluated all of the information and used it in determining the placement of survey, or priority, areas, with the unrestricted areal coverage giving the research team wide latitude in testing ideas about shipwreck location.

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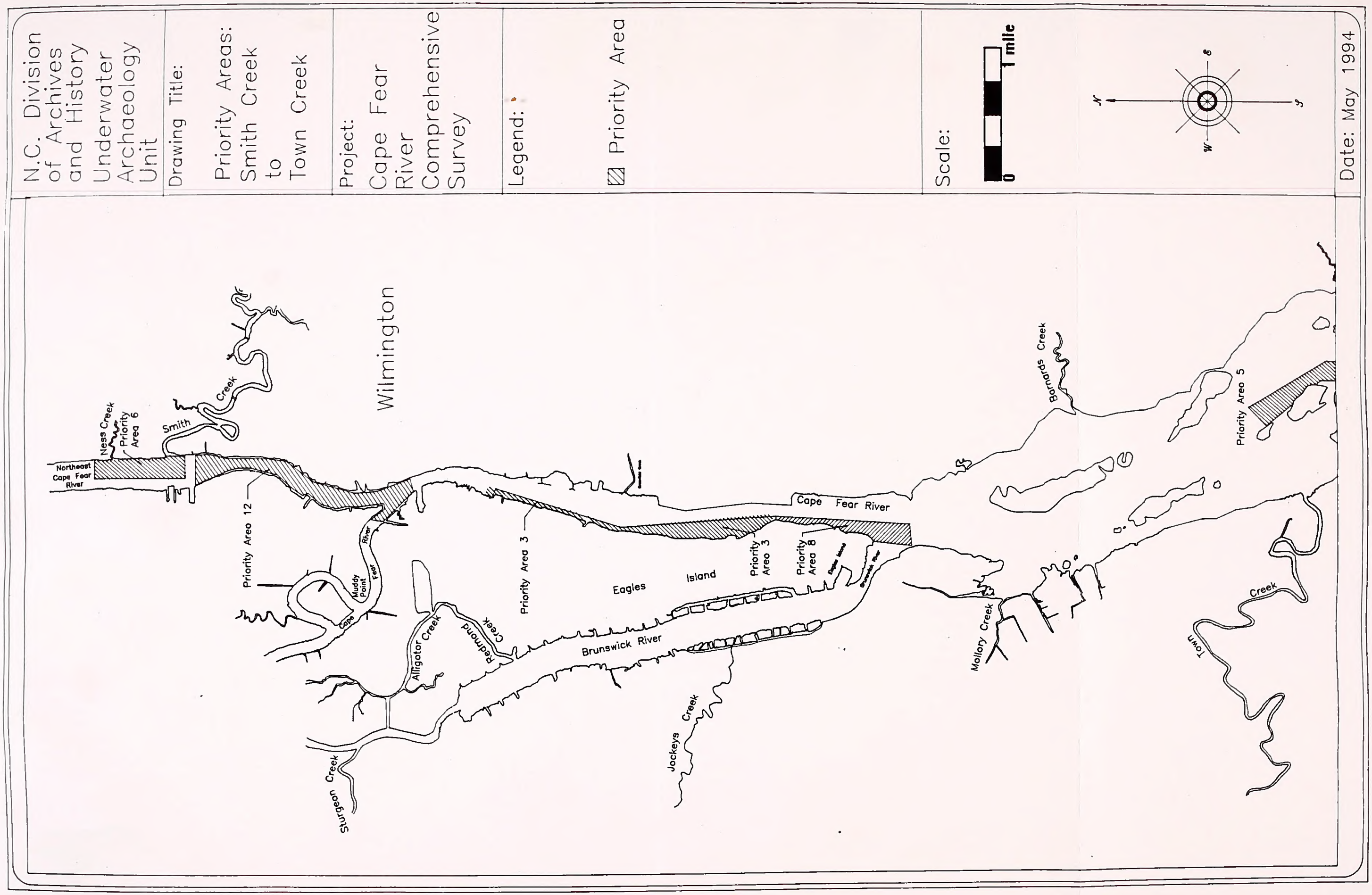
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Wilmington
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Ness Creek
Priority Area 6
Northeast Cape Fear River
Priority Area 12
Muddy Point
Cape Fear River
Alligator Creek
Redmond Creek
Priority Area 3
Eagles Island
Brunswick River
Priority Area 3
Priority Area 8
Eagles Island
Brunswick River
Cape Fear River
Jockeys Creek
Sturgeon Creek
Mollory Creek
Barnards Creek
Priority Area 5
Town Creek

Figure 39. Priority Areas: Smith Creek to Town Creek.

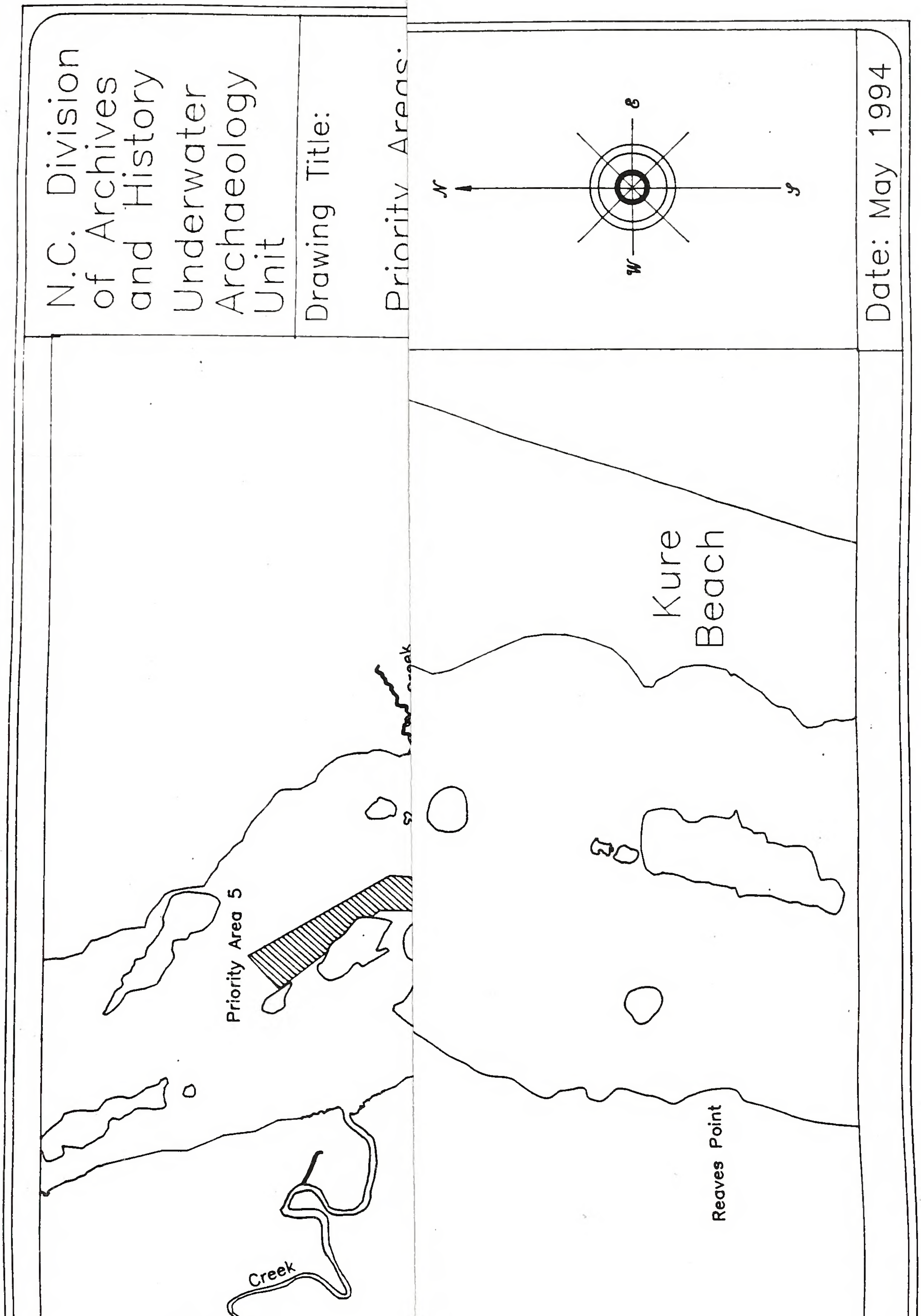
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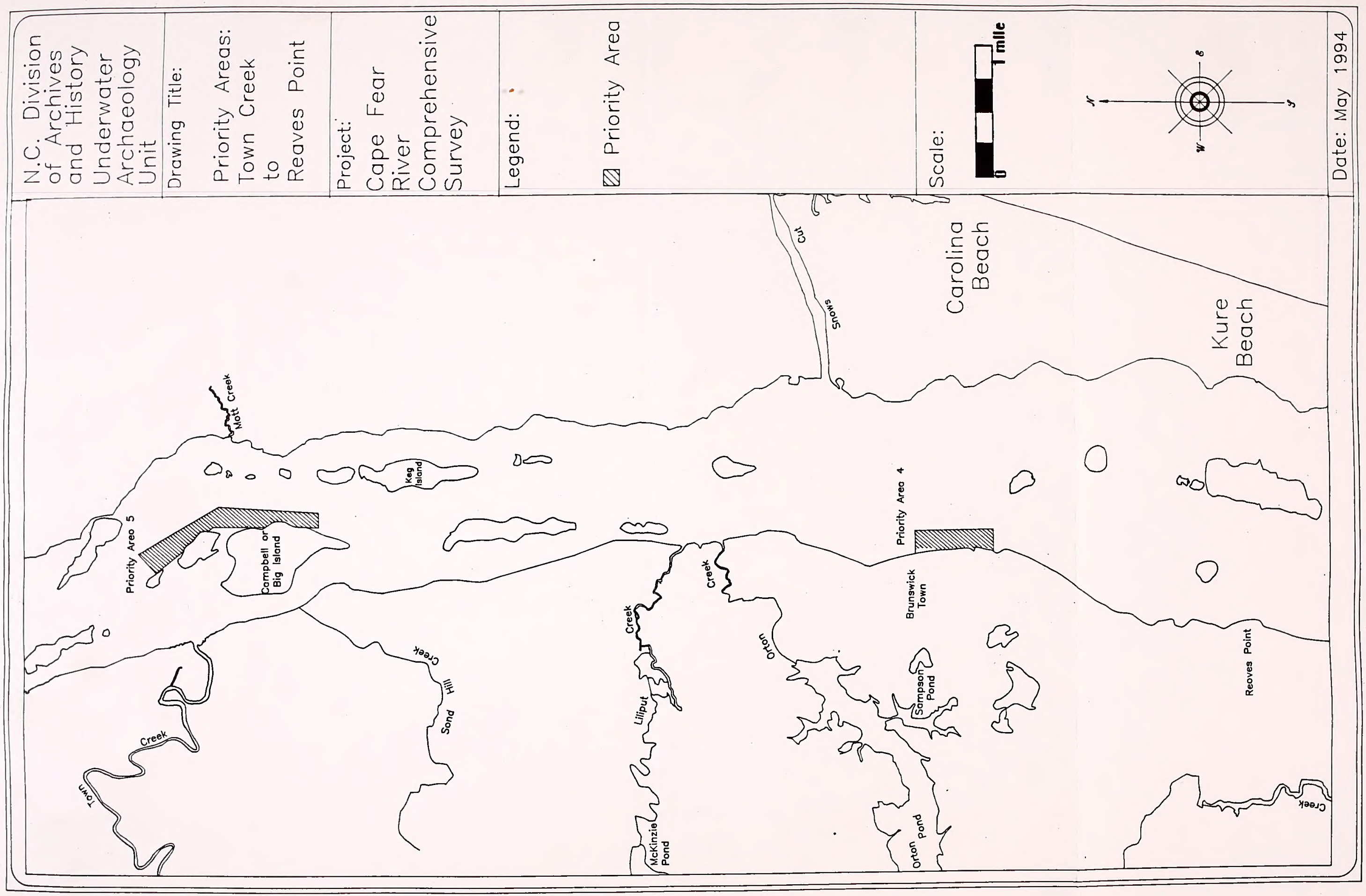
Figure 40. Priority Areas: Tow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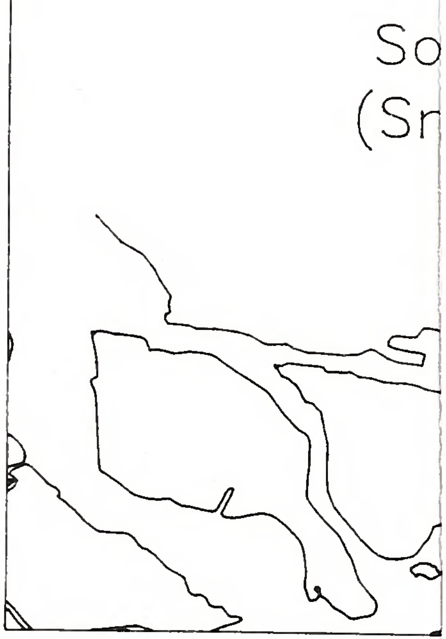
Carolina Beach
Kure Beach
Snows Cut
Mott Creek
Keg Island
Priority Area 5
Campbell or Big Island
Priority Area 4
Brunswick Town
Reaves Point
Town Creek
Sand Hill Creek
Liliput Creek
McKinzie Pond
Orton Creek
Sampson Pond
Orton Pond
Creek

Figure 40. Priority Areas: Town Creek to Reaves Point.



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Priority Areas:
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Cape Fear
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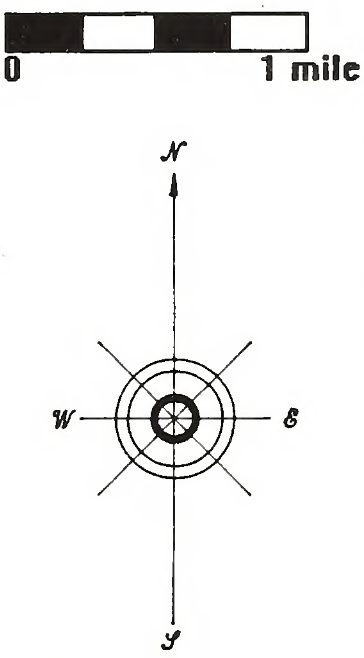

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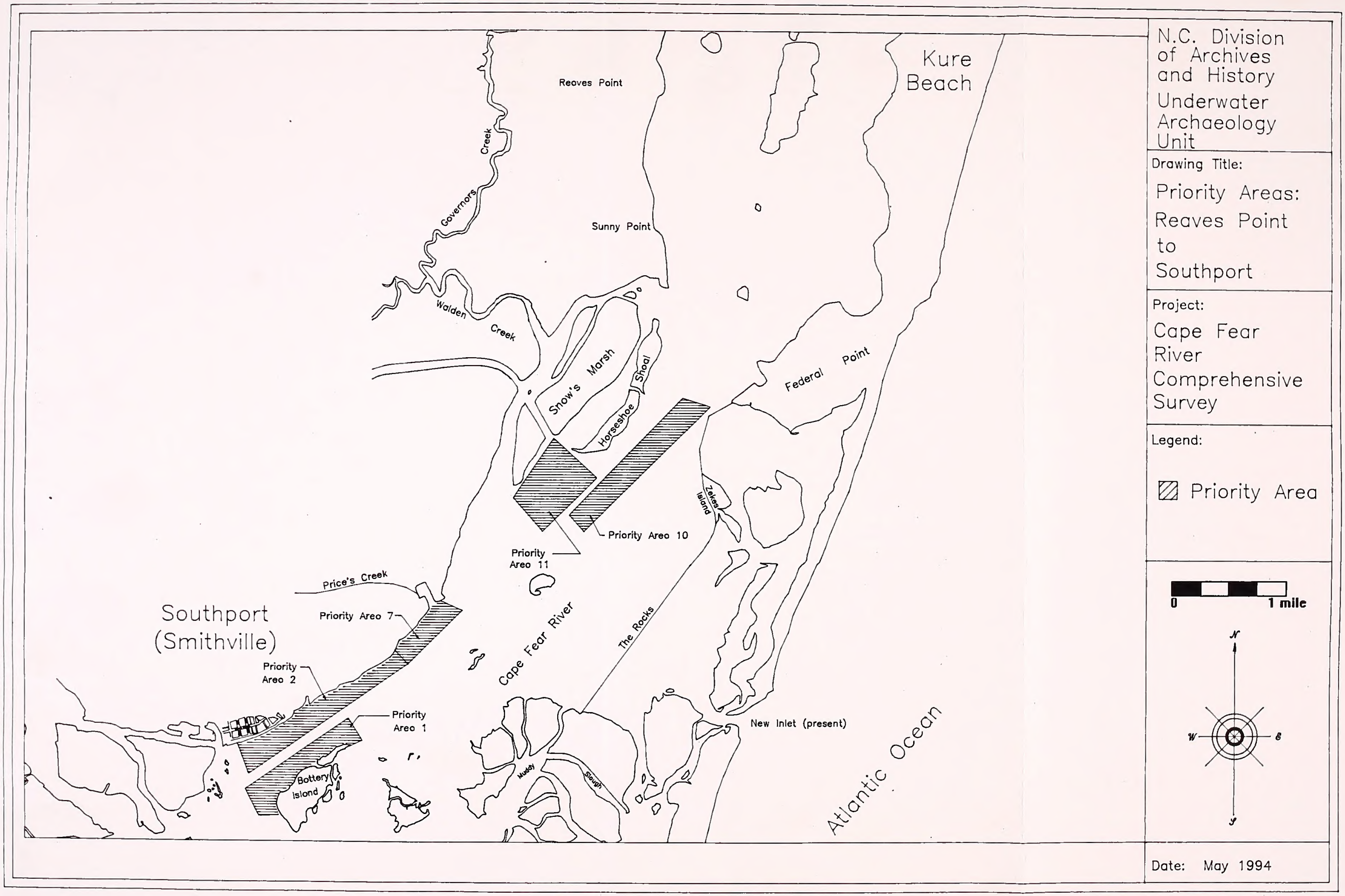
Figure 41. Priority Areas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Reaves Point
Sunny Point
Governors Creek
Walden Creek
Snow's Marsh
Horseshoe Shoal
Kure Beach
Federal Point
Zekes Island
Priority Area 10
Priority Area 11
Price's Creek
Southport (Smithville)
Priority Area 7
Priority Area 2
Priority Area 1
Battery Island
Cape Fear River
The Rocks
Muddy Slough
New Inlet (present)
Atlantic Ocean

Figure 41. Priority Areas: Reaves Point to Southport.

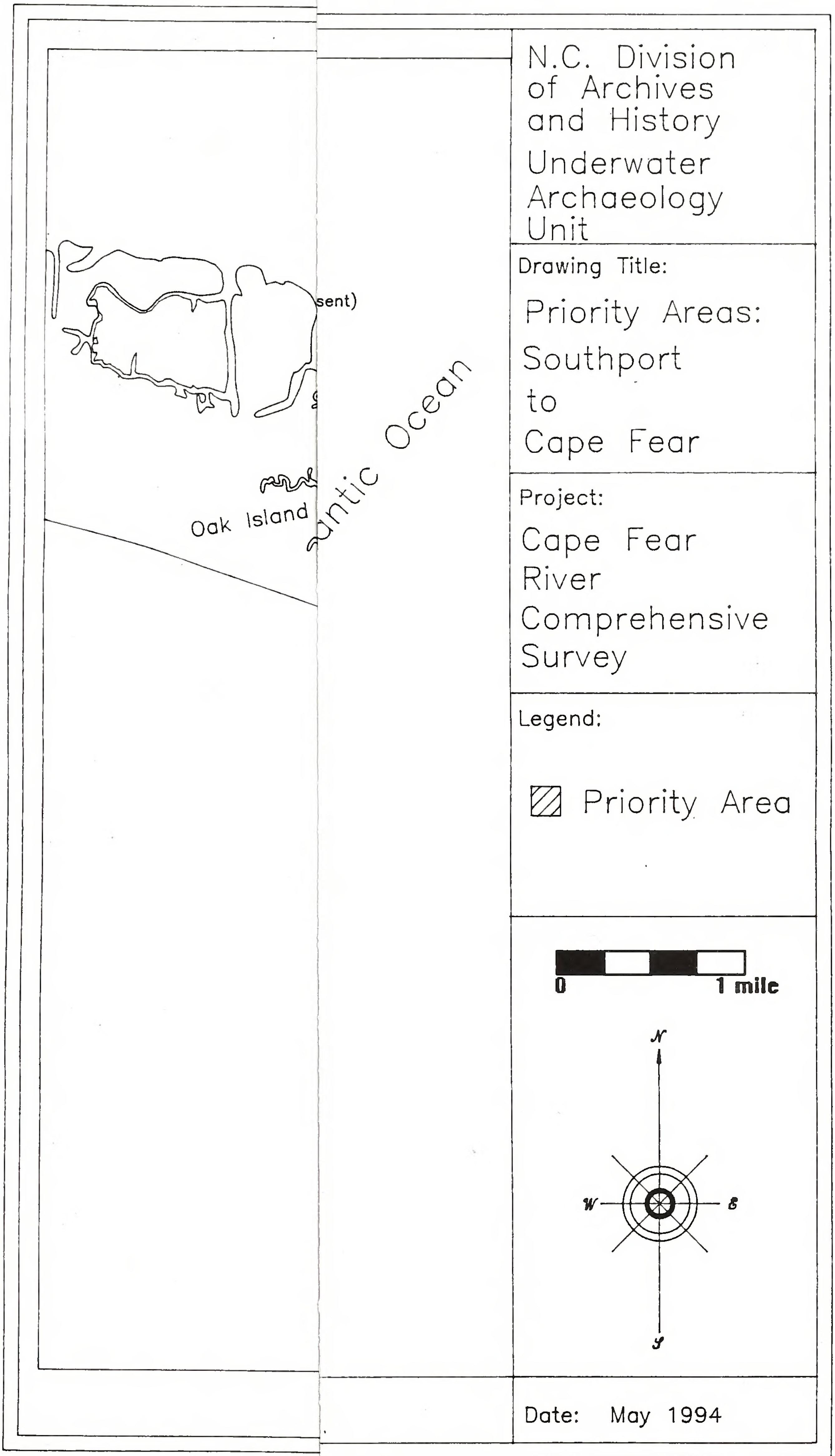
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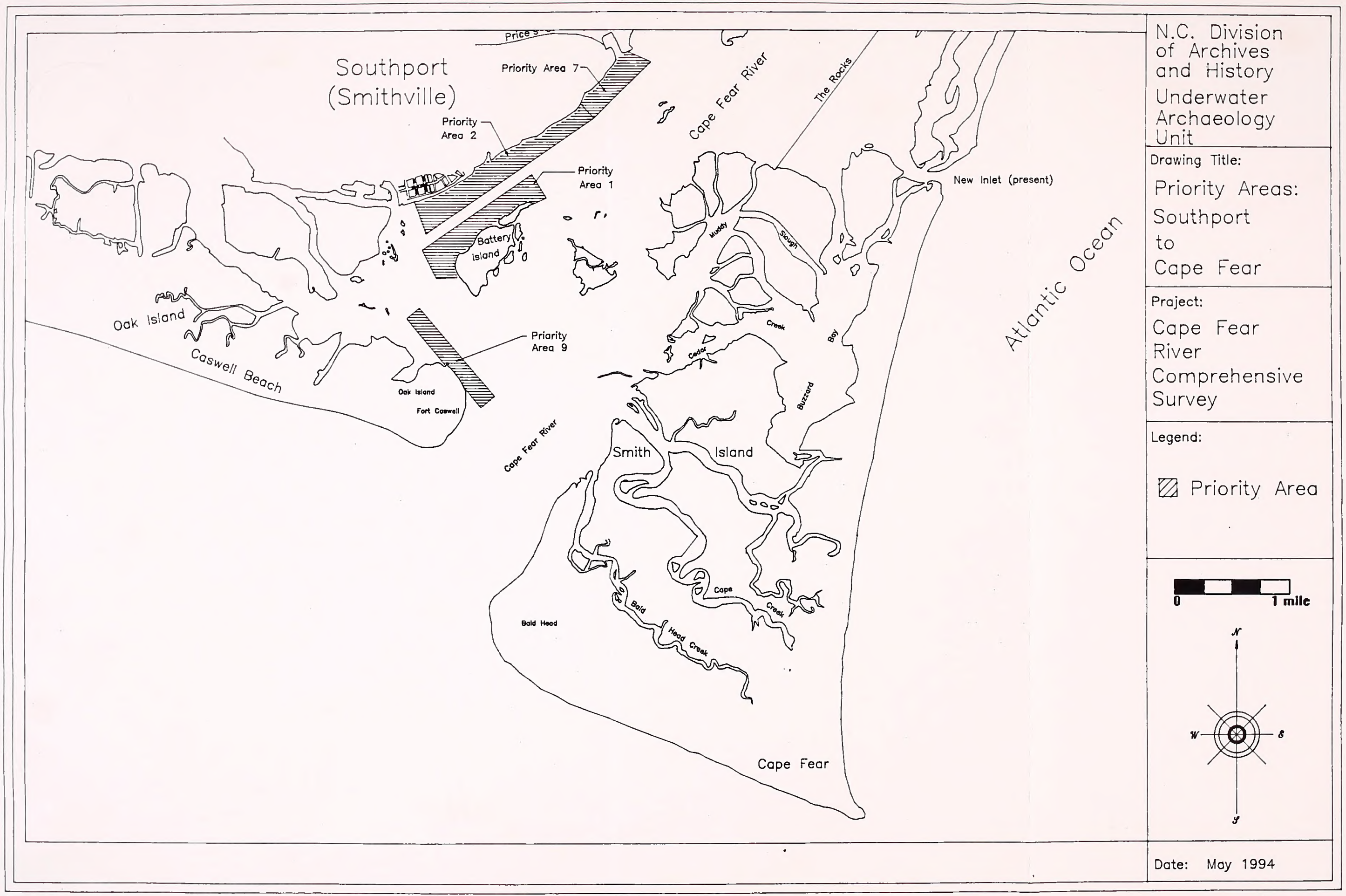
Figure 42. Priority Areas: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Price's
Southport (Smithville)
Priority Area 7
Priority Area 2
Priority Area 1
Priority Area 9
Battery Island
Cape Fear River
The Rocks
New Inlet (present)
Atlantic Ocean
Oak Island
Caswell Beach
Oak Island
Fort Caswell
Cape Fear River
Muddy
Slough
Creek
Cedar
Bay
Buzzard
Smith Island
Cape Creek
Bald Head Creek
Bald Head
Cape Fear

Figure 42. Priority Areas: Southport to Cape Fear.

mouth of Smith Creek were also considered areas of high potential for containing significant cultural resources, but they were not included as Cape Fear River Comprehensive Study priority areas since they had been surveyed during past UAU and USACOE projects (see Previous Cultural Resource Investigations and Previously Documented Sites sections of this report).

Phase One: Magnetometer Survey

Initial remote sensing of the priority areas during August and September 1993 utilized a magnetometer operated by USACE personnel aboard the survey vessels *Wanchese* and *Gillette*. A Geometrics G-806M dual-channel proton precession magnetometer was used to collect magnetic data, and a Motorola Mini-Ranger Falcon IV Surveyor radar positioning system was used to control positioning and navigation of the survey vessel. During all survey operations, a 60-foot lane spacing was maintained and the magnetometer sensor was towed in the water column at a depth of 10 to 12 feet above the bottom surface, except in areas of shallow water. The magnetometer's graph recorder provided a continuous, permanent record of the magnetic background and target signatures. The survey crew annotated the graph recorder strip chart and recorded the date, survey area, time of day, lane number, and, at regular intervals, the vessel position. Throughout the survey operations, magnetic and positioning data were recorded on computer disks for later processing.

Phase Two: Target Investigation/Diver Reconnaissance

Upon completion of the magnetic survey, the USACOE used the field data to produce magnetic contour maps of each priority area **(Figure 43)**. Through analysis of the magnetic contour maps and the magnetometer strip charts, the UAU was able to pinpoint magnetic anomalies that warranted additional field investigation. Selected for continued study were those anomalies whose magnetic signatures resembled other signatures from known submerged cultural resources such as shipwrecks. It was possible to eliminate some anomalies because of their association with visible cultural features such as navigation buoys and beacons, moored vessels, or shoreline structures such as piers.

UAU personnel using the survey vessel *Snap Dragon*, equipped with a Motorola positioning system, a Geometrics G806-M magnetometer, and a high resolution Klein 500 kHz sidescan sonar, conducted the target investigation/diver reconnaissance phase of the fieldwork between September 13 through December 23, 1993 **(Figure 44)**. During that phase of the project, 20-foot lane spacing was maintained and the sidescan sonar sensor was towed at a depth of approximately 15 feet above the bottom surface, except in areas of shallow water or in areas with extensive amounts of bottom debris that might extend well into the water column. Using the Motorola positioning system, the target sites were relocated (see **Appendix 2A** for station locations). Both the magnetometer and the side-scan sonar were then employed to position buoys on material generating each signature **(Figures 45,46,47)**. In some cases, based upon the

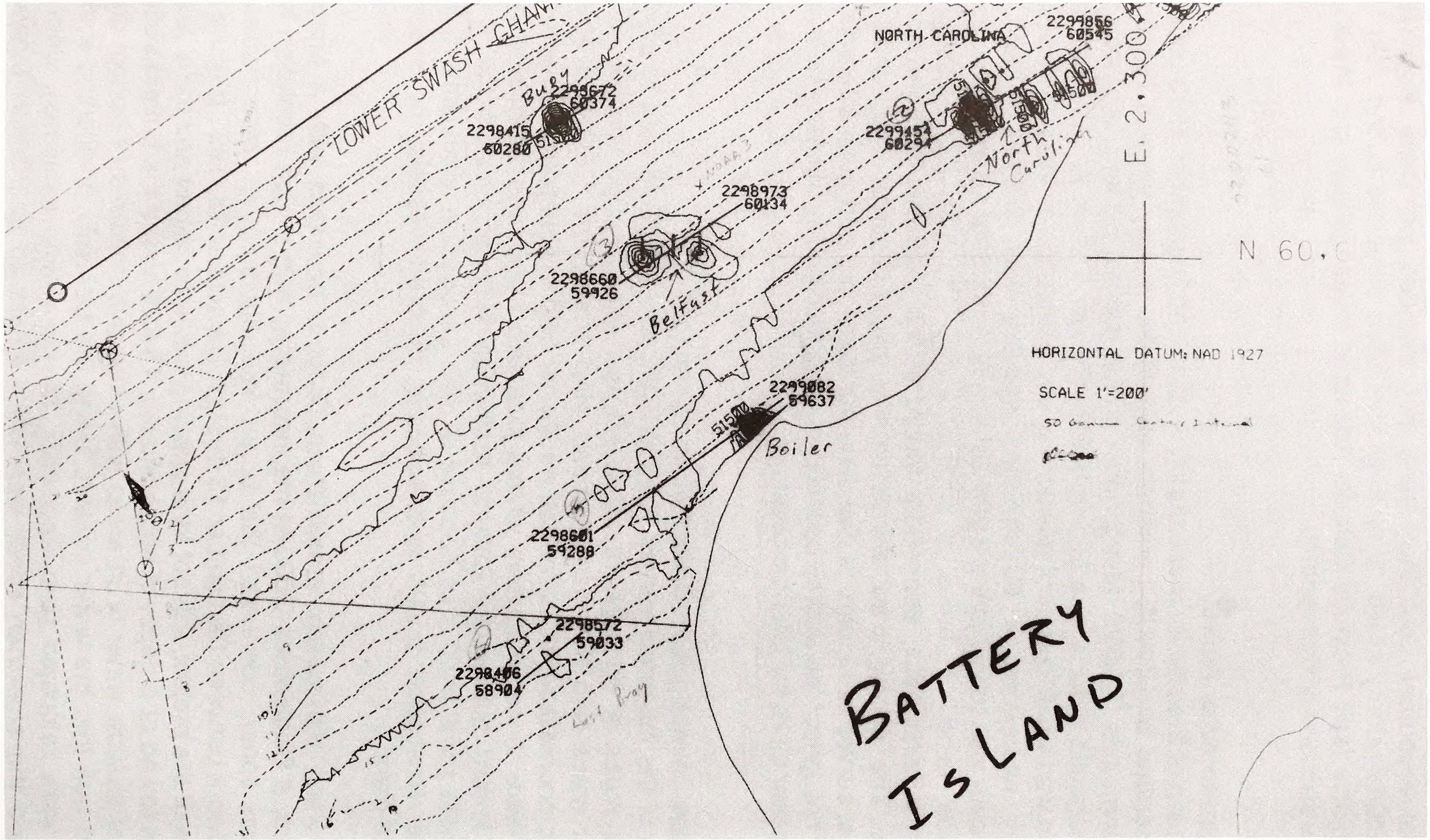

LOWER SWASH CHAN
Buoy
2298672
60374
2298415
60280
NORTH CAROLINA
2299856
60545
2299454
60294
North Carolina
E. 2,300
2298973
60134
2298660
59926
Belfast
N 60,
HORIZONTAL DATUM: NAD 1927
SCALE 1'=200'
2299082
59637
Boiler
2298601
59288
2298572
59033
2298406
58904
Last Buoy
BATTERY ISLAND

Figure 43. Magnetic contour map of the Cape Fear River near Battery Island prepared by the USACOE and used by the UAU field crew to relocate magnetic anomalies. The parallel, dashed lines show the track of the survey vessel *Wanchese*. This map depicts anomalies caused by the CSS *North Carolina* (0052CFR), the *Belfast* (0081CFR), a discarded boiler (0085CFR), and a navigational buoy marking the Lower Swash Channel.

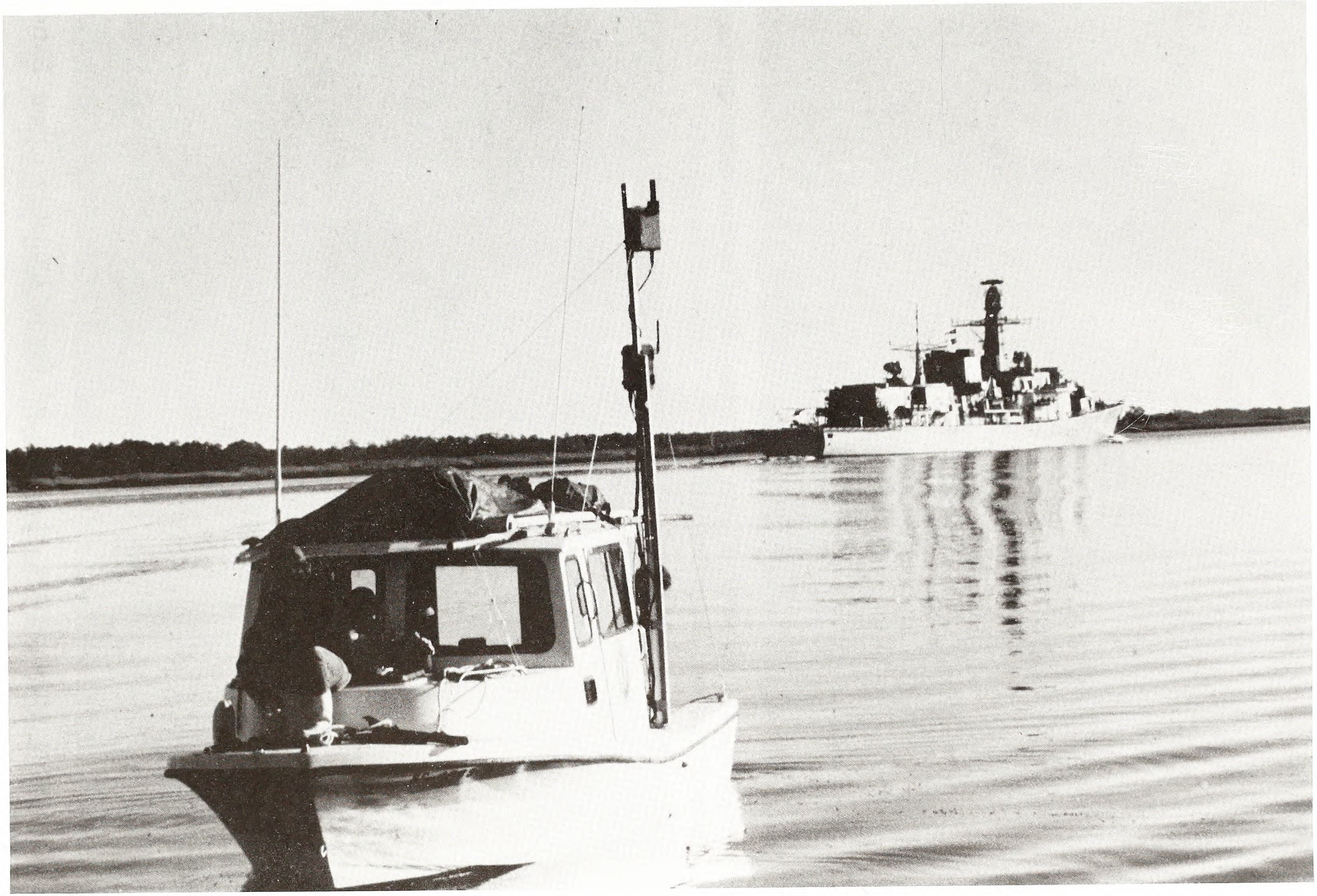


Figure 44. The UAU's 24-foot research vessel *Snap Dragon* during survey operations near Campbell Island.

Figure 45. Project field director, Glenn Overton adjusts the sidescan sonar recorder aboard *Snap Dragon*.

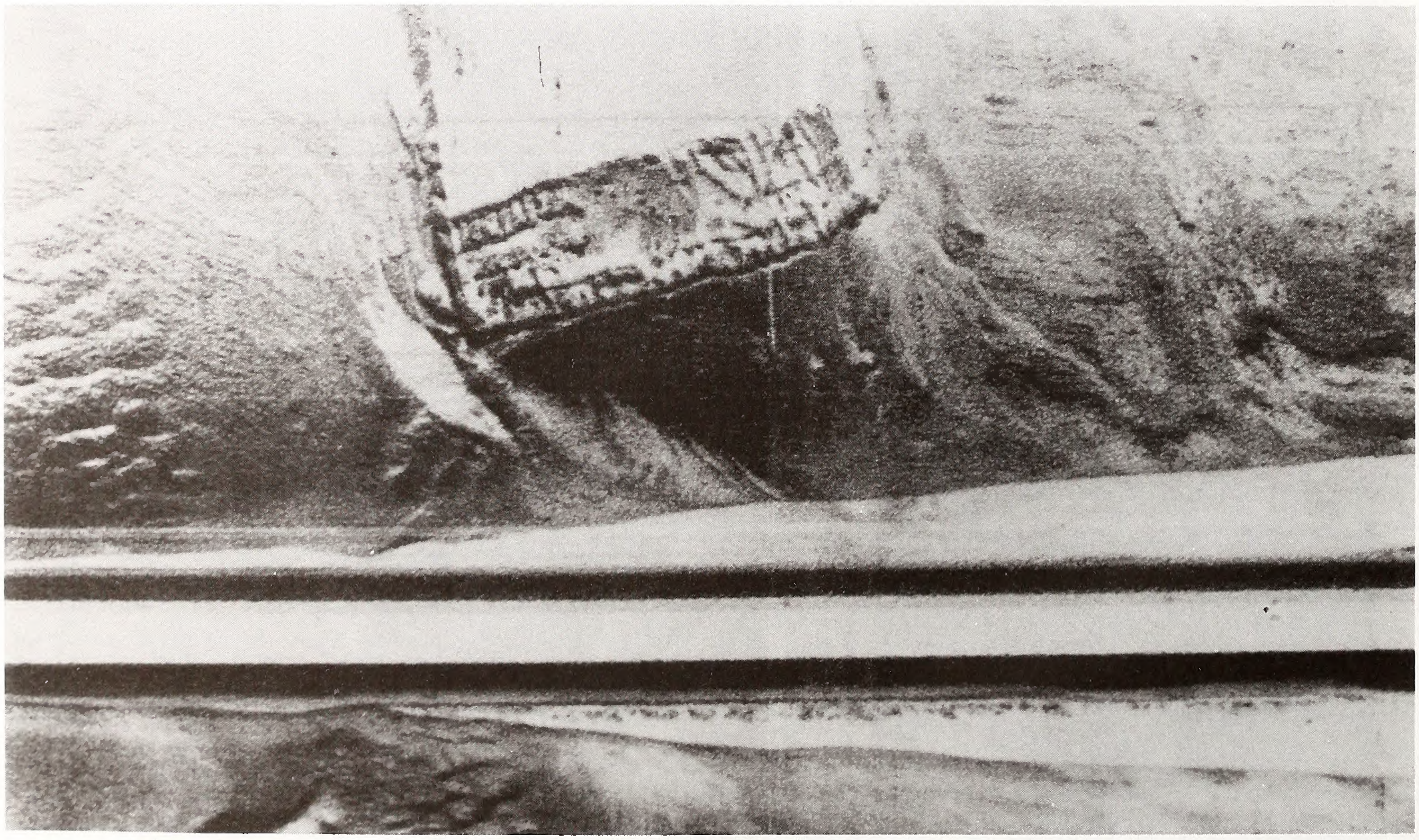


Figure 46. Sidescan sonar image of NOAA #4 Barge (0038CFR) near Battery Island.

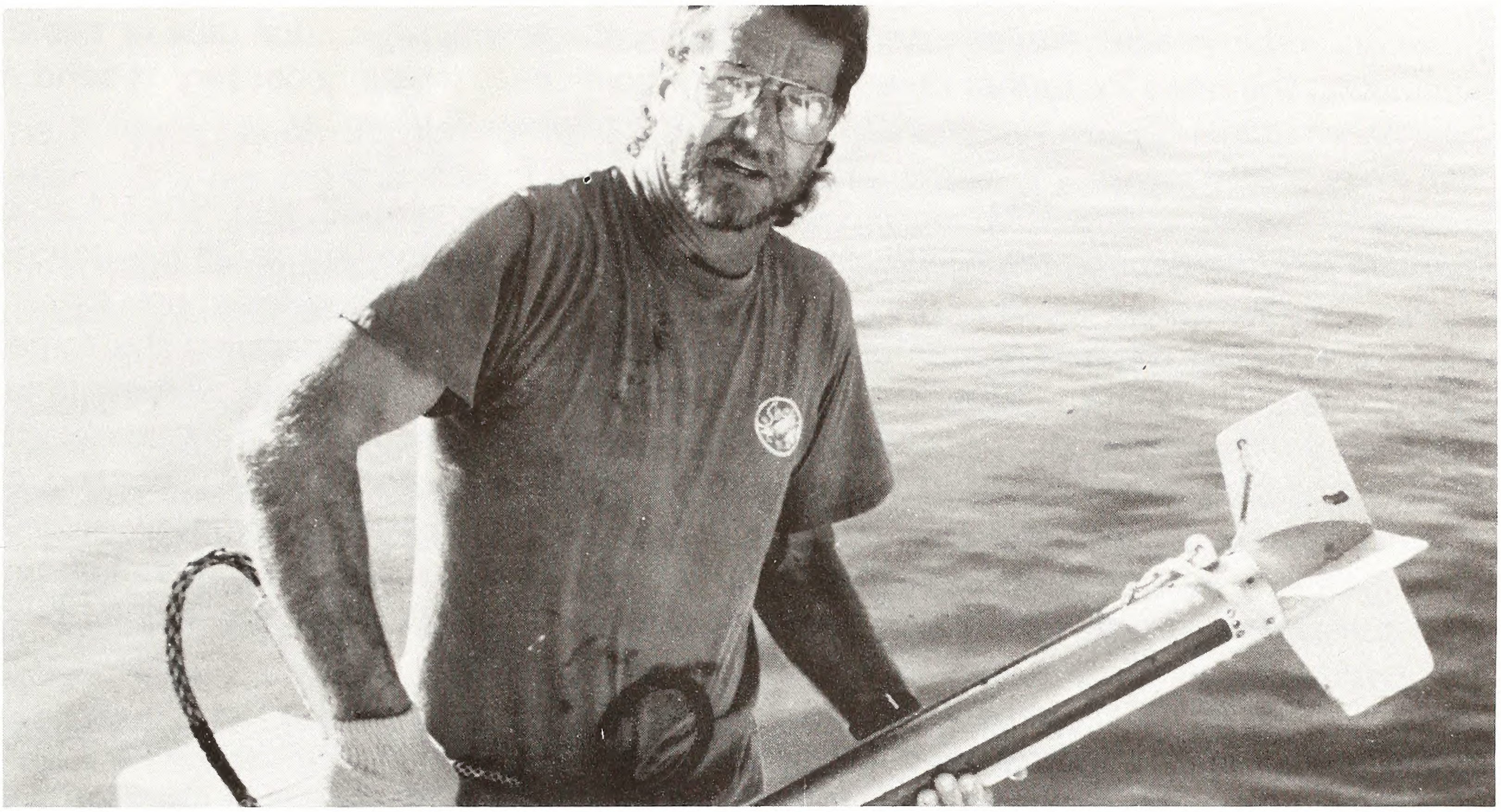


Figure 47. Howard Scott, project diver and technician, prepares to launch the sidescan "towfish."

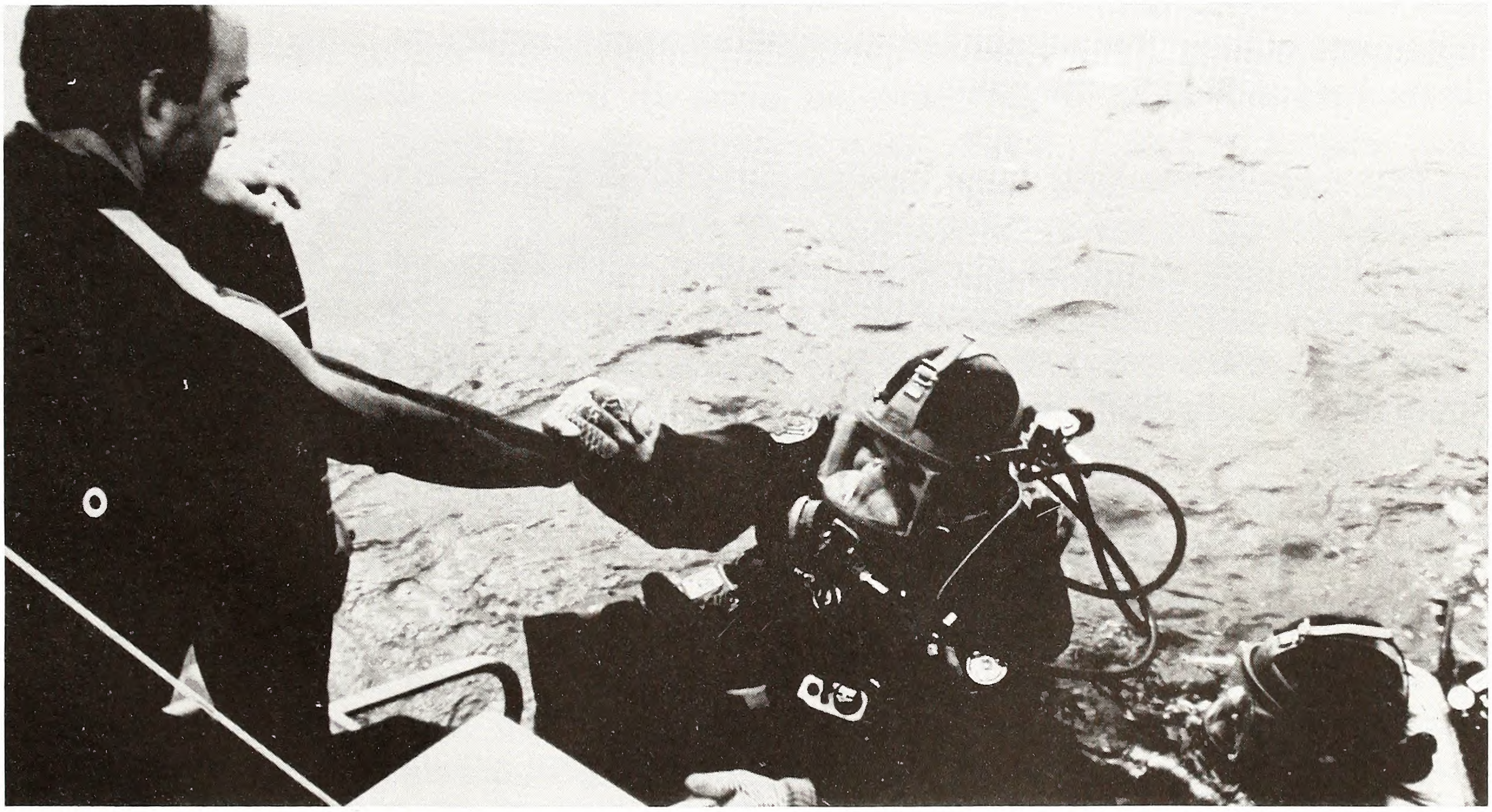


Figure 48. Project archaeologist Martin Peebles lends a hand to Glenn Overton, while Howard Scott waits his turn to board the boat. Throughout the project, swift river currents limited diving operations to periods of slack tide.

sidescan sonar images, it was possible to identify the anomaly as steel pipe or cable, eliminating the need for further investigation. In most cases it was necessary to send a diver down to identify the source of the magnetic disturbance, however.

Divers, adhering to the UAU diving safety manual and equipped with SCUBA and wireless single-sideband receiver/transmitters for communication, surveyed the bottom surface at each target location **(Figure 48)**. Using a tether attached to a buoy sinker, divers conducted circle searches of the area until the material generating the target was located. Once the reference buoy was repositioned at the target site, material generating the signature was examined. Exposed features were measured and sketched, although encrustation and coral growth often prevented the recording of specific details. Sample and diagnostic artifacts were recovered and properly stored, cataloged, and sent to the UAU conservation lab for further analysis. In areas of strong tidal currents, diving activities were generally limited to the slack period around high and low tide.

Occasionally, after a systematic circle search of the bottom and probing with a 3-foot, hand-held probe, it was not possible for the divers to locate the source of the magnetic anomaly. If after a reasonable period of bottom time, usually one or two hours, the search failed to locate the target, operations moved to the next target. It was felt that this was justified since the objective of the survey was not a complete archaeological clearance of the priority areas but rather an attempt to record as many sites as possible in the time allotted for the survey.

In that manner the UAU team investigated 102 targets, making 150 dives in Priority Areas 1 through 11. The survey of Priority Area 12, which extended up the Northeast Cape Fear from the USS *North Carolina* Battleship Memorial to the mouth of Smith Creek, consisted of a documentation of twenty-seven sites exposed along both shorelines at low tide. The UAU and USACOE had previously surveyed the deepwater portion of Priority Area 12.

Priority Areas and Target Descriptions

The following is an account of all targets investigated during the project. The target descriptions are organized by the numbered priority areas. If a target was determined during investigation to be a significant site such as a shipwreck and assigned an Underwater Archaeology Unit (UAU) site number, it will be described further in the Site Descriptions section of this report.

PRIORITY AREA 1: Battery Island

Priority Area 1 was located on the western and southern sides of Battery Island. That area was selected for survey based on historical accounts indicating that the vessels CSS *North Carolina*, *Belfast*, *Rose*, *Sarah*, *Swiftsure*, *Wave*, and *Jacob Brandon* were lost along Battery Island. The survey area extended from the eastern channel toe to the high-water mark on the western shoreline of the island. The maximum width of the survey area measured 1,000 feet, with a length of 6,000 feet. Ten targets were examined within the priority area near Battery Island **(Figure 49)**.

Target 1-A	**State Plane Coordinates** **2300241 E, 61081 N**

Target 1-A, located on the western side of Battery Island, had a bipolar magnetic signature of 400 gammas over a 15-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a single exposed linear object, 7 feet in length, that protruded approximately 1 foot 6 inches above the bottom surface. Diver reconnaissance identified the sonar target as a large cylindrical object approximately 2 feet 6 inches in diameter and 5 feet in length. The metal object had welded seams and was determined to be a piece of dredge pipe. The bottom sediment was a hard shell-and-sand bottom, with a firm layer of clay under about 6 inches of sand. Visibility was approximately 2 feet. No further investigation of the target was warranted.

Target 1-B	**State Plane Coordinates** **2300503 E, 61435 N**

Target 1-B was located on the west side of Battery Island and had a bipolar magnetic signature of 640 gammas over a 9-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a long linear object approximately 30 feet in length and exposed 6 inches above the bottom surface. A bottom scour was also noted running parallel to the object. Diver reconnaissance located a piece of wire cable approximately 20 feet in length and 3 inches in diameter. The bottom sediment was a hard shell-and-sand bottom, with a firm layer of clay under about 6 inches of sand. Visibility was approximately 2 feet. No further investigation was required.

Target 1-C **State Plane Coordinates**
2299530 E, 60392 N

Target 1-C, located near the west bank of Battery Island, had a bipolar magnetic signature of 1,000 gammas over an 18-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a large scatter of material approximately 150 feet in length and exposed 4 feet above the bottom surface. At that target divers located the remains of a sunken vessel believed to be the Confederate ironclad *North Carolina* (see Site Descriptions 0052CFR). The bottom sediment was sand mixed with shell, and the visibility varied from 1 foot to 4 feet. Further investigation was required at Target 1-C.

Target 1-D **State Plane Coordinates**
2299676 E, 60391 N

Target 1-D had a bipolar magnetic signature of 500 gammas over a 20-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a large scatter of debris exposed 4 feet from the bottom surface. Target 1-D was a portion of the *North Carolina* wreck site (see Site Descriptions 0052CFR).

Target 1-E **State Plane Coordinates**
2298711 E, 59863 N

Target 1-E, located offshore of the southwest portion of Battery Island, had a bipolar magnetic signature of 240 gammas over a 20 pulse-duration **(Figure 49)**. Corresponding sonagram images indicated a large scatter of debris exposed approximately 15 feet off the bottom surface and covered a 150-foot area in length. Diver reconnaissance of the area located the remains of what was believed to be the schooner-barge *Belfast* (see Site Descriptions 0081CFR). Bottom sediment was sand, shell, and a medium-soft sand. Visibility varied from 6 inches to 3 feet. Further investigation was required at Target 1-E.

Target 1-F **State Plane Coordinates**
2298468 E, 58858 N

Target 1-F, located on the southwest side of Battery Island, had a bipolar magnetic signature of 210 gammas over a 7-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a linear object exposed approximately 6 inches above the bottom surface. Diver reconnaissance of the area located a single piece of wire rope approximately 15 feet in length and buried at each end. The search area had a sandy bottom. Visibility was around 1 foot. No additional investigation was required for this target.

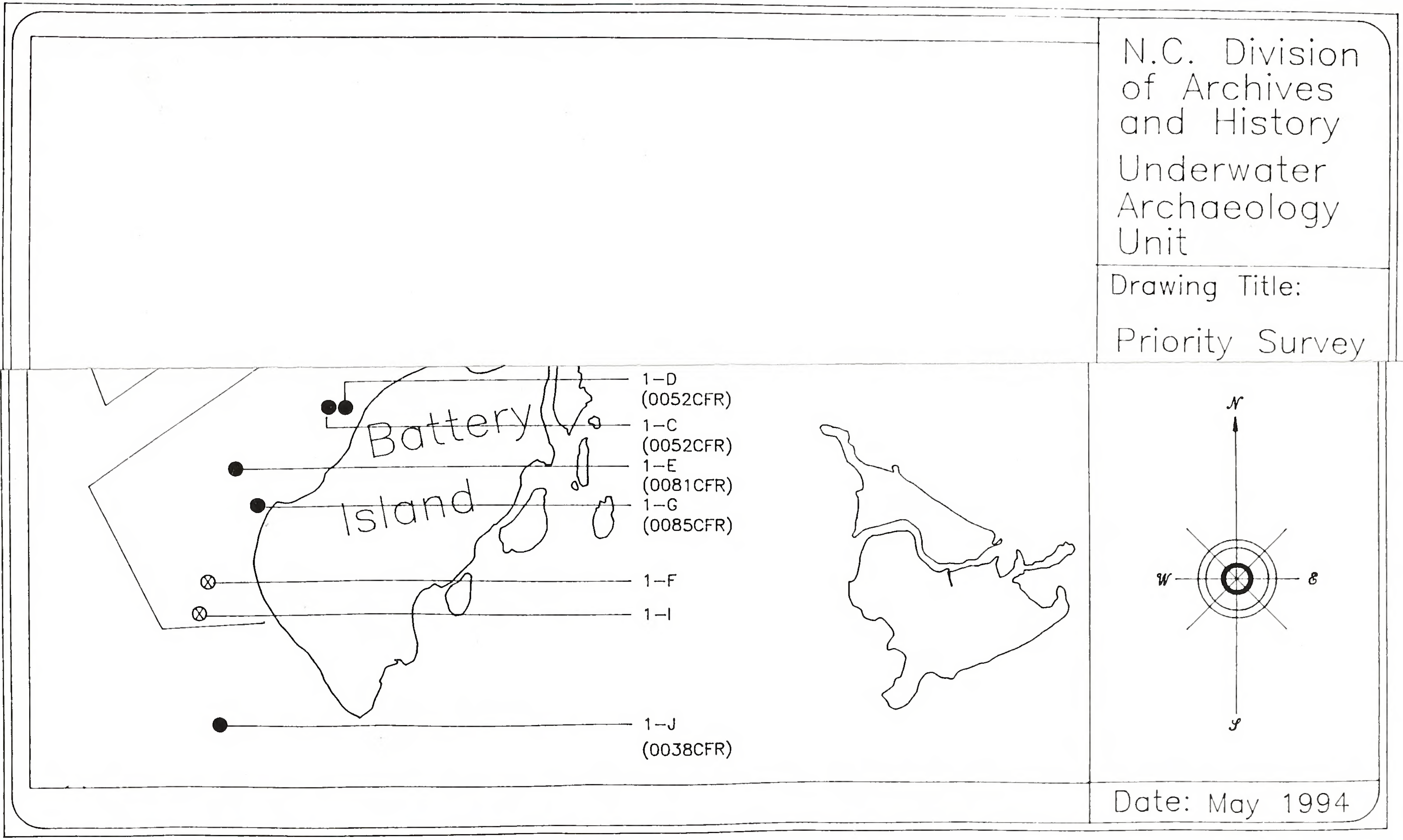

N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Priority Survey
Date: May 1994
N
W
E
S
Battery Island
1-D (0052CFR)
1-C (0052CFR)
1-E (0081CFR)
1-G (0085CFR)
1-F
1-I
1-J (0038CFR)

Figure 49. Priority Areas 1 an

Target 1-C	**State Plane Coordinates** **2299530 E, 60392 N**

Target 1-C, located near the west bank of Battery Island, had a bipolar magnetic signature of 1,000 gammas over an 18-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a large scatter of material approximately 150 feet in length and exposed 4 feet above the bottom surface. At that target divers located the remains of a sunken vessel believed to be the Confederate ironclad *North Carolina* (see Site Descriptions 0052CFR). The bottom sediment was sand mixed with shell, and the visibility varied from 1 foot to 4 feet. Further investigation was required at Target 1-C.

Target 1-D	**State Plane Coordinates** **2299676 E, 60391 N**

Target 1-D had a bipolar magnetic signature of 500 gammas over a 20-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a large scatter of debris exposed 4 feet from the bottom surface. Target 1-D was a portion of the *North Carolina* wreck site (see Site Descriptions 0052CFR).

Target 1-E	**State Plane Coordinates** **2298711 E, 59863 N**

Target 1-E, located offshore of the southwest portion of Battery Island, had a bipolar magnetic signature of 240 gammas over a 20 pulse-duration **(Figure 49)**. Corresponding sonagram images indicated a large scatter of debris exposed approximately 15 feet off the bottom surface and covered a 150-foot area in length. Diver reconnaissance of the area located the remains of what was believed to be the schooner-barge *Belfast* (see Site Descriptions 0081CFR). Bottom sediment was sand, shell, and a medium-soft sand. Visibility varied from 6 inches to 3 feet. Further investigation was required at Target 1-E.

Target 1-F	**State Plane Coordinates** **2298468 E, 58858 N**

Target 1-F, located on the southwest side of Battery Island, had a bipolar magnetic signature of 210 gammas over a 7-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a linear object exposed approximately 6 inches above the bottom surface. Diver reconnaissance of the area located a single piece of wire rope approximately 15 feet in length and buried at each end. The search area had a sandy bottom. Visibility was around 1 foot. No additional investigation was required for this target.

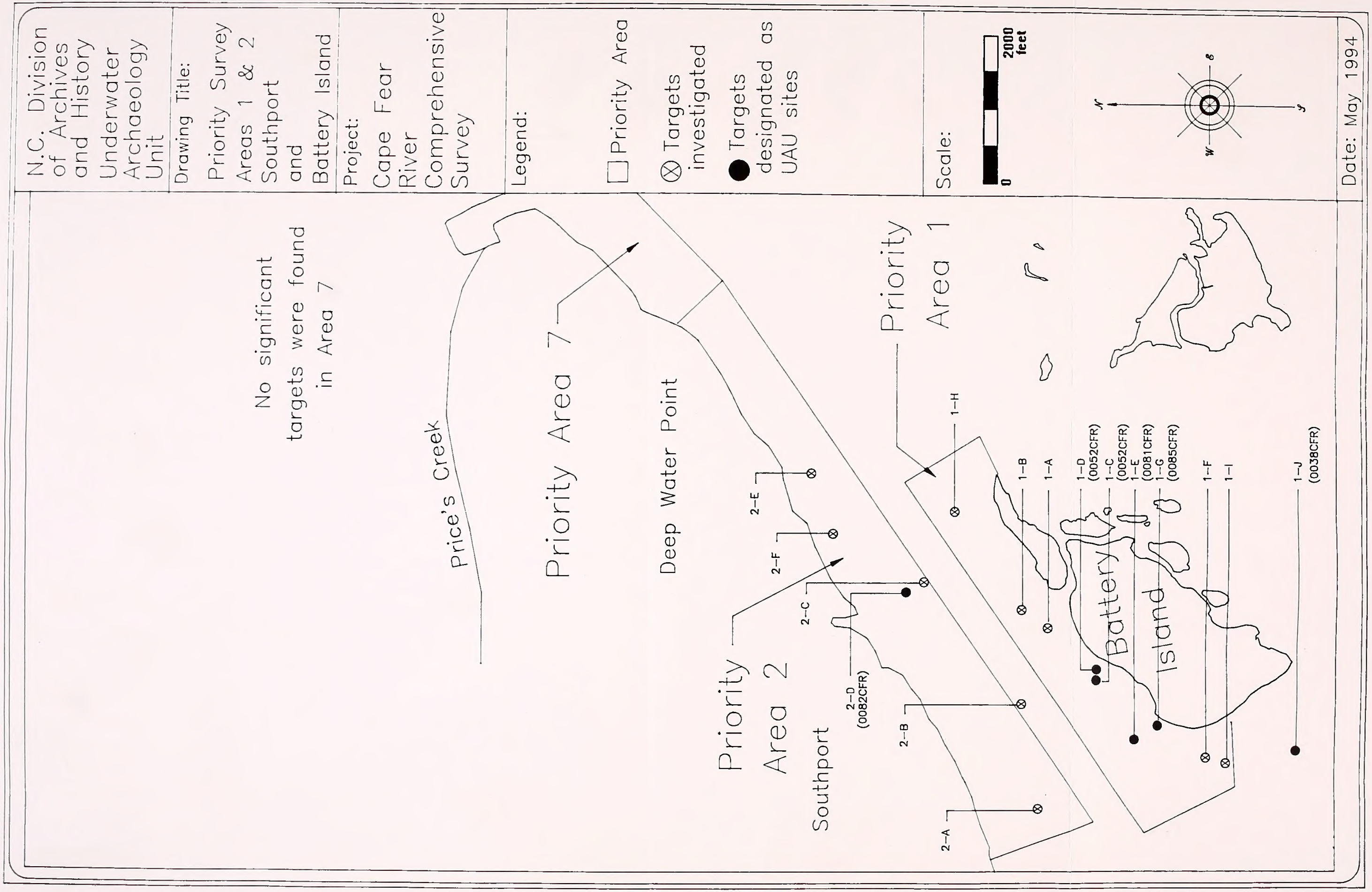

N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Priority Survey Areas 1 & 2 Southport and Battery Island
Project:
Cape Fear River Comprehensive Survey
Legend:
☐ Priority Area
⊗ Targets investigated
● Targets designated as UAU sites
Scale:
0
2000 feet
N
E
S
W
Date: May 1994
No significant targets were found in Area 7
Price's Creek
Priority Area 7
Deep Water Point
Priority Area 1
Priority Area 2
Southport
Battery Island
2–A
2–B
2–C
2–D (0082CFR)
2–E
2–F
1–A
1–B
1–C (0052CFR)
1–D (0052CFR)
1–E (0081CFR)
1–F
1–G (0085CFR)
1–H
1–I
1–J (0038CFR)

Figure 49. Priority Areas 1 and 2 showing Target Locations.

Target 1-G	**State Plane Coordinates** **2298892 E, 59539 N**

Target 1-G, located at the southern end of Battery Island, had a negative monopolar magnetic signature of 60 gammas over a 7-pulse duration **(Figure 49)**. No corresponding sonagram records were identified in association with the magnetic signature because of the shallow water depth. During periods of low tide the object was partially exposed. Diver reconnaissance of the area located the remains of an iron boiler exposed approximately 3 feet above the bottom surface (see Site Descriptions 0085CFR). Although the depth of water at this site was very shallow, strong currents limited work time to about 30 minutes during both high and low tides. The bottom surface was a coarse sand with a light mixture of shell hash. Visibility was approximately 1 foot. Further investigation was required at Target 1-G.

Target 1-H	**State Plane Coordinates** **2301835 E, 62355 N**

Target 1-H, located along the northwest side of Battery Island, had a bipolar magnetic signature of 80 gammas over a 9-pulse duration **(Figure 49)**. Corresponding sonagram records did not reveal any objects other than several scours in the bottom surface. Diver investigation of the area located no source of material generating the magnetic signature. Probing at depths of 6 inches to 1 foot along 5-foot intervals within a 30-foot square area did not locate the target. Additional refining of the target location was accomplished with use of the magnetometer, but no cultural material could be located. The bottom surface was a hard-packed sand with a light layer of shell hash. Visibility averaged 2 feet. Because of the hard compact bottom sediment and the small area of magnetic disturbance, it was determined that the material generating the magnetic signature was a single unknown object. No additional investigation was conducted at Target 1-H.

Target 1-I	**State Plane Coordinates** **2298394 E, 58586 N**

Target 1-I, located at the southwest end of Battery Island, had a bipolar magnetic signature of 50 gammas over a 15-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a right-angled object exposed approximately 1 foot off the bottom surface. Diver reconnaissance of the area located a 2-inch metal pipe exposed 2 feet off the bottom surface. Beside this object lay a 3-foot-square piece of metal that protruded 2 feet off a bottom surface of sand and a light amount of shell hash. Visibility was approximately 1 foot. No additional investigation was required for this target.

Target 1-J **State Plane Coordinates 2298564 E, 57611 N**

Target 1-J, located at the south end of Battery Island, had a positive monopolar magnetic signature of 120 gammas over a 14-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a large rectangular object 100 feet in length and exposed approximately 6 feet off the bottom surface. Diver reconnaissance of the area located a barge 110 feet in length (see Site Descriptions 0038CFR). The area around the barge was sand and rock, with 15-feet-deep scours on each end of the vessel. Visibility averaged 4 feet. Further investigation was required at Target 1-J.

PRIORITY AREA 2: *Kate* vicinity

Priority Area 2, Deep Water Point to Southport, was the projected area of the wrecked blockade-runner *Kate* on the west side of Lower Swash Channel. In addition, there has been considerable maritime activity along the Southport (Smithville) waterfront. Historical records indicate that at least twenty-eight other vessels were lost in that vicinity. The area extended from the west channel toe to the high-water mark on the west bank. The maximum width of the survey area was 1,000 feet, and the length was 9,000 feet. Six targets were examined in Priority Area 2 **(Figure 49)**.

Target 2-A **State Plane Coordinates 2297767 E, 61213 N**

Target 2-A, located at the southern end of Lower Swash Channel and opposite the Southport city dock, had a bipolar magnetic signature of 900 gammas over a 16-pulse duration **(Figure 49)**. No sonar images were obtained at Target 2-A because of the fact the side-scan sonar was not available at that time. Diver reconnaissance of the area located an 8-foot section of what appeared to be dredge pipe. A coupling was located on one end of the pipe. The bottom surface was sand, with visibility of around 1 foot. No further investigation was required at Target 2-A.

Target 2-B **State Plane Coordinates 2299197 E, 61445 N**

Target 2-B, located on the western toe of the Lower Swash Channel, had a bipolar magnetic signature of 50 gammas over a 9-pulse duration **(Figure 49)**. No sonar images were available for Target 2-B. Diver evaluation of the target uncovered a 4-foot section of metal pipe 3 inches in diameter and a 5-foot metal bar 1 inch in diameter. The bottom surface was sand; the visibility was approximately 1 foot. No further investigation was warranted for this target.

Target 2-C	**State Plane Coordinates** **2300860 E, 62780 N**

Target 2-C, located near the western toe of the Lower Swash Channel directly off the Southport-Bald Head Island ferry dock, had a positive monopolar magnetic signature of 80 gammas over an 11-pulse interval **(Figure 49)**. Corresponding sonagram records indicated a large scour in the bottom surface and possibly a single linear object exposed 2 feet from the bottom surface, roughly 15 feet in length. Diver investigation of the area located a large depression in the bottom surface approximately 8 feet in diameter. The depression, caused by swift currents, had a 2-foot step or ledge cut into the hard clay bottom and continued downriver about 10 feet in length. Further inspection of the surrounding area revealed more steps cut nearly 2 feet into the bottom surface. The search did not reveal the source causing the magnetic anomaly. The visibility averaged 1 foot. No further investigation of the target was conducted.

Target 2-D	**State Plane Coordinates** **2300723 E, 63027 N**

Target 2-D, located directly off the Southport-Bald Head Island ferry dock, had a positive monopolar magnetic signature of 440 gammas over an 11-pulse duration **(Figure 49)**. Corresponding sonagram records indicated a large scatter of debris exposed nearly 15 feet from the bottom surface and covered an area 100 feet in length. Diver investigation of the area located the remains of a nineteenth-century steamer believed to be the blockade-runner *Kate* (see Site Descriptions 0082CFR). On the channel side of the vessel the bottom surface was hard clay, but sand and shell hash covered most of the area around the wreckage. Visibility averaged 2 feet on the higher-relief portions of the vessel and 1 foot on the bottom. Further investigation was required at Target 2-D.

Target 2-E	**State Plane Coordinates** **2302344 E, 64330 N**

Target 2-E had a bipolar magnetic signature of 1,200 gammas over a 15-pulse duration **(Figure 49)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the target located a small pile of twisted cable exposed approximately 2 feet from the bottom surface. The bottom surface was sand and hard clay, and visibility averaged 1 foot. No further investigation of Target 2-E was warranted.

Target 2-F	**State Plane Coordinates** **2301533 E, 64040 N**

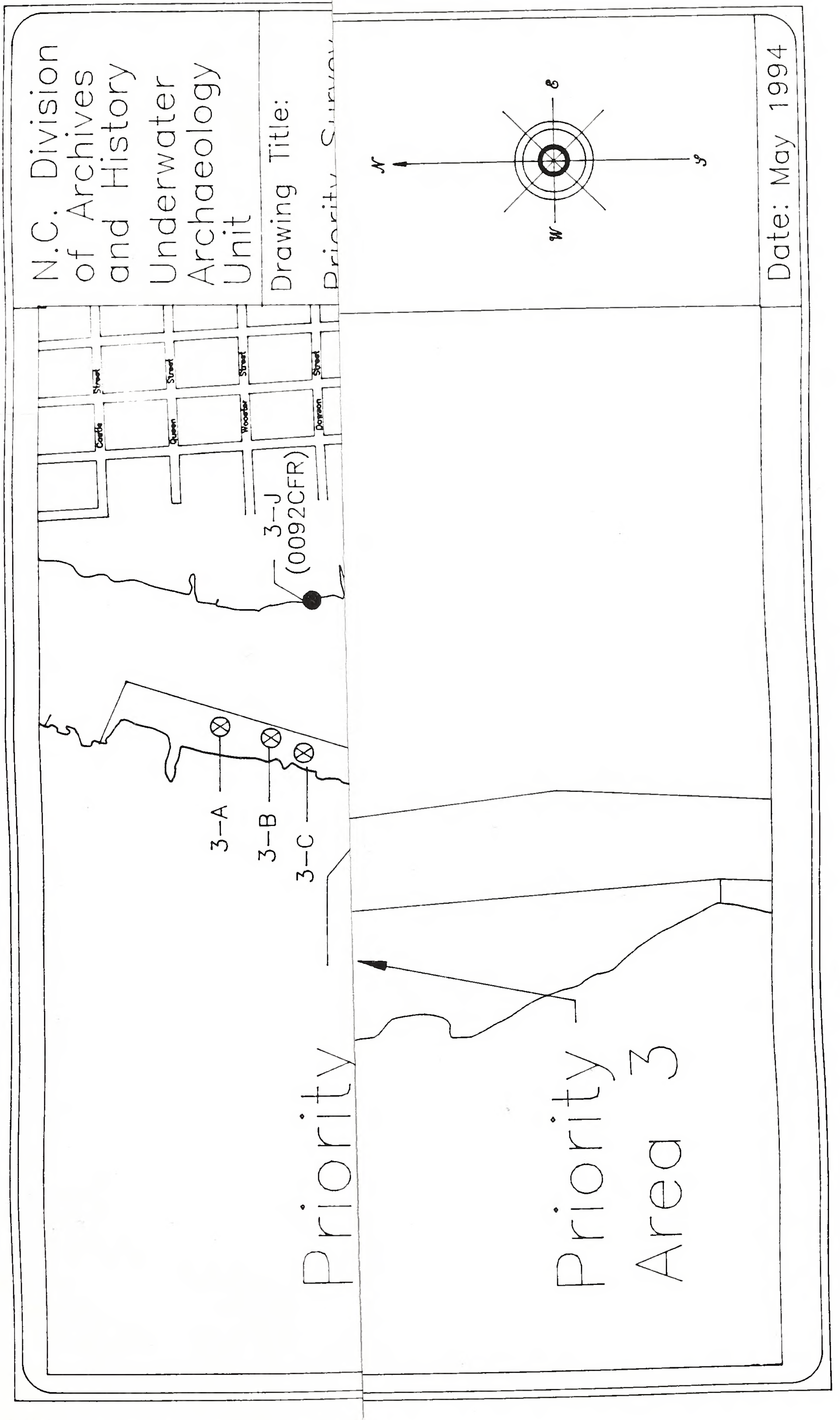
Target 2-F, located near the Brunswick County shoreline, had a multi-component magnetic signature of 260 gammas over a 15-pulse duration **(Figure 49)**. No corresponding sonagram records were identified in association with the magnetic signature. A diver reconnaissance of the area did not reveal any material generating the magnetic anomaly. Probing the area with a hand probe could not be accomplished because of the hard clay-and-sand bottom. Visibility was approximately 2 feet. No further investigation of the target was conducted.

PRIORITY AREA 3: Anchorage Basin

Priority Area 3, Anchorage Basin/Between Channel, encompassed the western side of the Cape Fear River from the Cape Fear Memorial Bridge to channel marker 55. The selection of this area for survey was based on accounts of historic shipwreck losses in the vicinity; among them were the steamers *Henrietta*, *Sylvan Grove*, and *J. S. Underhill* and the wrecking schooner *Siam*. The area extended from the west channel toe to the high-water mark on the east side of Eagles Island. The maximum width of the survey area was 850 feet, and the length was 12,700 feet. A total of ten targets were examined in Priority Area 3 **(Figure 50)**. Because of the unusual amount of magnetic disturbance in the area, the magnetometer records could not be used on most targets, forcing the survey crew to rely upon sonar imagery and visual inspection to locate and assess targets. Visual inspection of the river bottom by divers and from the survey boat at low tide identified that the magnetic disturbance was generated by modern dredging debris, particularly steel pipe and wire cable throughout the survey area.

Target 3-A	**State Plane Coordinates** **2136226 E, 174764 N**

Target 3-A was located downstream of the Cape Fear Memorial Bridge and just offshore of the McAllister Tug Company on Eagles Island **(Figure 50)**. It had no corresponding magnetic signature because of the large amount of magnetic interference in the surrounding area. Sonagram images of the target revealed a single linear object exposed roughly 4 feet off the bottom surface. Diver investigation of the target located pilings 8 inches in diameter and 10 feet in length and wooden planks protruding out of a depression in the bottom surface. The structure was approximately 7 feet in width, with 6-inch planks fastened to the pilings. The bottom surface was sand and mud. Visibility averaged 6 inches. The structure was probably related to a dock or bulkhead. Further investigation was not required at Target 3-A.


N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Date: May 1994
N
E
S
W
Castle
Street
Queen
Street
Wooster
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Dawson
Street
3-J (0092CFR)
3-A
3-B
3-C
Priority
Priority Area 3

Figure 50. Priority Area 3 sh

Target 2-F	State Plane Coordinates 2301533 E, 64040 N

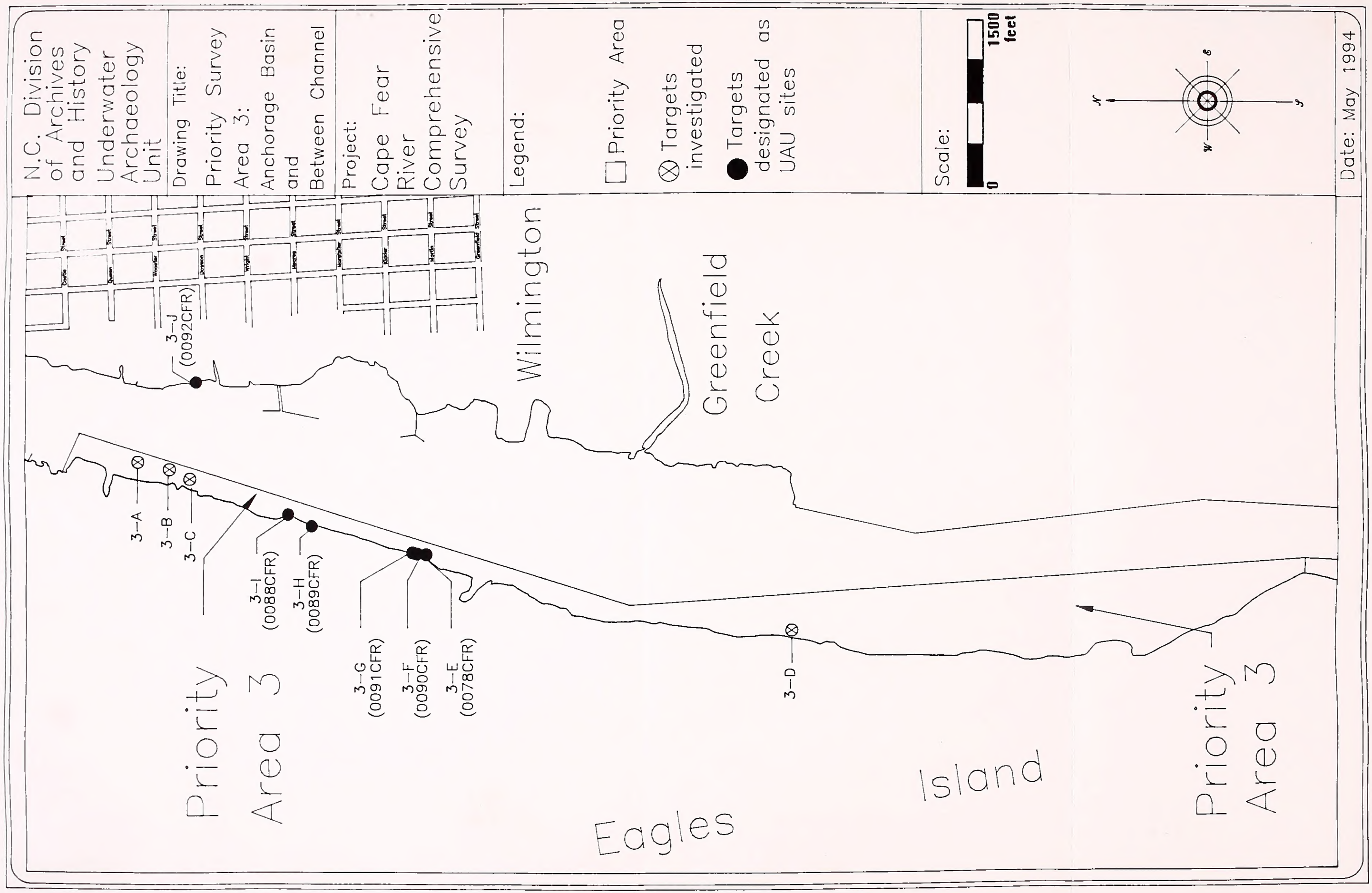
Target 2-F, located near the Brunswick County shoreline, had a multi-component magnetic signature of 260 gammas over a 15-pulse duration **(Figure 49)**. No corresponding sonagram records were identified in association with the magnetic signature. A diver reconnaissance of the area did not reveal any material generating the magnetic anomaly. Probing the area with a hand probe could not be accomplished because of the hard clay-and-sand bottom. Visibility was approximately 2 feet. No further investigation of the target was conducted.

PRIORITY AREA 3: Anchorage Basin

Priority Area 3, Anchorage Basin/Between Channel, encompassed the western side of the Cape Fear River from the Cape Fear Memorial Bridge to channel marker 55. The selection of this area for survey was based on accounts of historic shipwreck losses in the vicinity; among them were the steamers *Henrietta*, *Sylvan Grove*, and *J. S. Underhill* and the wrecking schooner *Siam*. The area extended from the west channel toe to the high-water mark on the east side of Eagles Island. The maximum width of the survey area was 850 feet, and the length was 12,700 feet. A total of ten targets were examined in Priority Area 3 **(Figure 50)**. Because of the unusual amount of magnetic disturbance in the area, the magnetometer records could not be used on most targets, forcing the survey crew to rely upon sonar imagery and visual inspection to locate and assess targets. Visual inspection of the river bottom by divers and from the survey boat at low tide identified that the magnetic disturbance was generated by modern dredging debris, particularly steel pipe and wire cable throughout the survey area.

Target 3-A	State Plane Coordinates 2136226 E, 174764 N

Target 3-A was located downstream of the Cape Fear Memorial Bridge and just offshore of the McAllister Tug Company on Eagles Island **(Figure 50)**. It had no corresponding magnetic signature because of the large amount of magnetic interference in the surrounding area. Sonagram images of the target revealed a single linear object exposed roughly 4 feet off the bottom surface. Diver investigation of the target located pilings 8 inches in diameter and 10 feet in length and wooden planks protruding out of a depression in the bottom surface. The structure was approximately 7 feet in width, with 6-inch planks fastened to the pilings. The bottom surface was sand and mud. Visibility averaged 6 inches. The structure was probably related to a dock or bulkhead. Further investigation was not required at Target 3-A.


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
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Project:
Cape Fear River Comprehensive Survey
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☐ Priority Area
⊗ Targets investigated
● Targets designated as UAU sites
Scale:
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1500 feet
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S
W
Date: May 1994
Castle Street
Queen Street
Wooster Street
Dawson Street
Wright Street
Meares Street
Marstellar Street
Kidder Street
Martin Street
Greenfield Street
Wilmington
Greenfield Creek
3–J (0092CFR)
3–A
3–B
3–C
3–I (0088CFR)
3–H (0089CFR)
3–G (0091CFR)
3–F (0090CFR)
3–E (0078CFR)
3–D
Priority Area 3
Priority Area 3
Eagles Island

Figure 50. Priority Area 3 showing Target Locations.

Target 3-B **State Plane Coordinates**
2136160 E, 174440 N

Target 3-B was located downriver of the Cape Fear Memorial Bridge and slightly upriver from the Cape Fear Towing Company on Eagles Island **(Figure 50)**. The target had no corresponding magnetic signature because of the close proximity of a metal bulkhead. The sonar records did indicate a scour in the bottom surface approximately 5 feet wide and 40 feet long. A scatter of linear objects approximately 2 feet off the bottom surface varied in length from 3 to 10 feet and were positioned near the scour. Diver reconnaissance of the area located two pilings 6 and 8 feet in length and 10 inches in diameter near the bottom scour. Two large tractor tires were also located in the area. The bottom was both sand and hard clay, with an average of 6 inches of visibility. No further investigation was warranted for Target 3-B.

Target 3-C **State Plane Coordinates**
2136050 E, 174250 N

Target 3-C was located offshore of Eagles Island, and to the north of, the Cape Fear Towing Company **(Figure 50)**. It had no corresponding magnetic signature because of the magnetic interference in the area. Sonar images revealed a large scatter of debris exposed 3 feet off the bottom surface and up to 6 feet in length. A diver evaluation of the area located several metal plates 1 foot by 3 feet and ½ inch thick, a 5-foot-long dredge pipe, and a log 8 feet in length and 3 feet in diameter. The bottom surface was both sand and hard clay, with an average of 6 inches of visibility. Target 3-C required no further investigation.

Target 3-D **State Plane Coordinates**
2134540 E, 168235 N

Target 3-D, located near the shoreline of Eagles Island just upriver from Beacon A, had a positive monopolar magnetic signature of 50 gammas over a 13-pulse duration **(Figure 50)**. Corresponding sonagram records indicated a large scatter of debris over a 100-foot area and exposed as much as 3 feet from the bottom surface. Diver reconnaissance located several bundles of ¾-inch- diameter cable scattered throughout the target area. An iron pipe, 6 inches in diameter, protruded 3 feet above the bottom surface. Near the toe of the channel several 8-inch-diameter pilings were found lying parallel to the channel. A wooden structure made of 4-inch by 6-inch timbers was partially exposed from the channel slope. No fasteners were identified during the initial survey. The badly damaged remains of the structure extended 5 feet from the slope and resembled that of a lightly built dock. The bottom surface was mostly sandy silt and clay, with visibility from 6 inches to 2 feet. No further investigation of Target 3-D was warranted.

Target 3-E	State Plane Coordinates 2315370 E, 171980 N

Target 3-E was located on the shoreline of Eagles Island and across the river from the Hess Oil Company **(Figure 50)**. The low water survey located the remains of a late nineteenth-century to early twentieth-century barge lying parallel to the shoreline just downriver from two large iron floats (see Site Descriptions 0078CFR). The bottom sediment was sand and mud. Further investigation was required at Target 3-E.

Target 3-F	State Plane Coordinates 2315300 E, 171970 N

Target 3-F was located just inshore from Target 3-E along Eagles Island **(Figure 50)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying in the marsh grass perpendicular to the shoreline (see Site Descriptions 0090CFR). The bottom sediment was mud and marsh grass. Additional investigation of Target 3-F was required.

Target 3-G	State Plane Coordinates 2315310 E, 172010 N

Target 3-G was located just north of Target 3-E along the Eagles Island shoreline **(Figure 50)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying on the beach perpendicular to the shoreline (see Site Descriptions 0091CFR). The bottom sediment was mud and marsh grass. Additional investigation of Target 3-G was required.

Target 3-H	State Plane Coordinates 2315600 E, 173020 N

Target 3-H was located on the Eagles Island shoreline and exposed at low tide **(Figure 50)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying on the beach parallel to the shoreline (see Site Descriptions 0089CFR). The bottom sediment was sand, mud, and marsh grass. Additional investigation of Target 3-H was required.

Target 3-I	**State Plane Coordinates** **2315700 E, 173240 N**

Target 3-I was located on a sand beach of Eagles Island just upriver from Target 3-H **(Figure 50)**. The low-water survey located the remains of a twentieth-century metal barge lying on the beach parallel to the shoreline (see Site Descriptions 0088CFR). The bottom sediment was sand. Additional investigation of Target 3-I was required.

Target 3-J	**State Plane Coordinates** **2317010 E, 174180 N**

Target 3-J was located on the east bank of the Cape Fear River adjacent to the foot of Dawson Street in Wilmington **(Figure 50)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying on the beach perpendicular to the shoreline (see Site Descriptions 0092CFR). The bottom sediment was sand and rock. Additional investigation of Target 3-J was required.

PRIORITY AREA 4: Brunswick Town/Fort Anderson

Priority Area 4 included the waterfront of Brunswick Town from Anderson Landing to the northern limit of the Military Ocean Terminal, Sunny Point. The area extended from the west channel toe to the high-water mark at Brunswick Town. The maximum width of the survey area was 900 feet, and the length was 3,500 feet. That area of the river was the scene of considerable maritime activity associated with Brunswick Town in the eighteenth century and with Fort Anderson during the Civil War. In addition, the Spanish ship *Fortuna* and the schooner *Liberty* were lost off Brunswick Town in 1748 and 1803 respectively. Twenty targets were investigated in the Priority Area 4 **(Figure 51)**.

During the initial investigation of targets in Priority Area 4, divers were unable to determine the source of several magnetic anomalies. Two of these targets, 4-F and 4-G, were located within 200 feet of where the UAU recovered a mid-eighteenth-century cannon in 1985. Because of the possibility that this cannon might have been associated with the wreck of the *Fortuna* and the proximity of those two anomalies to the cannon site, a concentrated effort was made to determine the source of targets 4-F and 4-G (see Target Descriptions). In a final effort to locate the origin of the two anomalies, the UAU team returned to Priority Area 4 on December 16, 1993, with a subbottom profiler provided by Tidewater Atlantic Research (TAR) of Washington, North Carolina. Gordon P. Watts, director of TAR, accompanied the crew to operate the equipment. The subbottom profiler failed to locate any buried structure in the vicinity of targets 4-F and 4-G, and in all possibility the two anomalies, like many of the other targets in the area, were created by the presence of isolated ferrous material such as buried wire cable, which is difficult to locate physically.

Target 4-A

State Plane Coordinates
2320240 E, 105590 N

Target 4-A, located offshore of Brunswick Town, had a bipolar magnetic signature of 160 gammas over a 6-pulse duration **(Figure 51)**. No corresponding sonagram records were identified with the magnetic signature. Diver reconnaissance of the area located a 3-inch diameter metal pipe protruding 2 feet from the bottom surface. Ballast stones measuring up to 18 inches were scattered throughout the target area. Visibility averaged 2 feet, and the bottom sediment varied from hard sand to clay and soft mud over a 40-foot-square area. No further investigation was warranted for Target 4-A.

Target 4-B

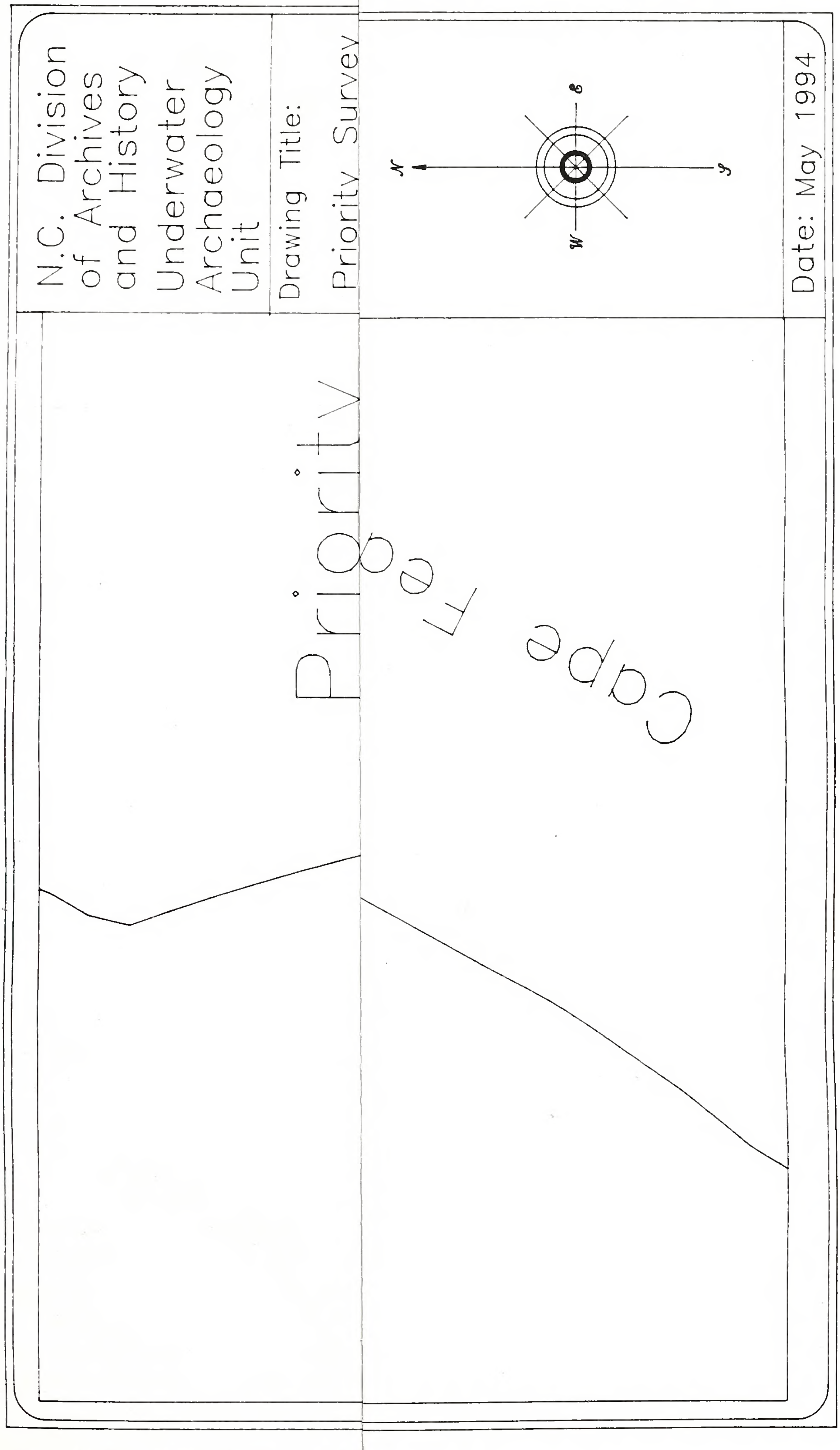
State Plane Coordinates
2320240 E, 105730 N

Target 4-B, located offshore of Brunswick Town and directly north of Target 4-A, had a positive monopolar magnetic signature of 65 gammas over a 10-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver reconnaissance of the area located a ¼-inch-diameter cable extending from the shoreline toward the channel. A shackle was located at the offshore end, where three cables branched off in different directions. Local fisherman told the survey crew the cable was used for fishing nets. Visibility in the area was 6 inches, and the bottom surface consisted of sand, mud, and shell hash. No further investigation of the target was conducted.

Target 4-C

State Plane Coordinates
2320350 E, 105710 N

Target 4-C, located slightly east of Target 4-B offshore of Brunswick Town, had a positive monopolar magnetic signature of 80 gammas over an 8-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located a ¼-inch-diameter cable running through an eye bolt. The direction of the cable suggested that it was one of the cables located at Target 4-B. Visibility averaged 6 inches. The bottom sediment consisted of sand and clay. No further investigation was warranted for Target 4-C.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Underwater Archaeology Unit
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Date: May 1994
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Figure 51. Priority Area 4 sh

Target 4-A **State Plane Coordinates**
2320240 E, 105590 N

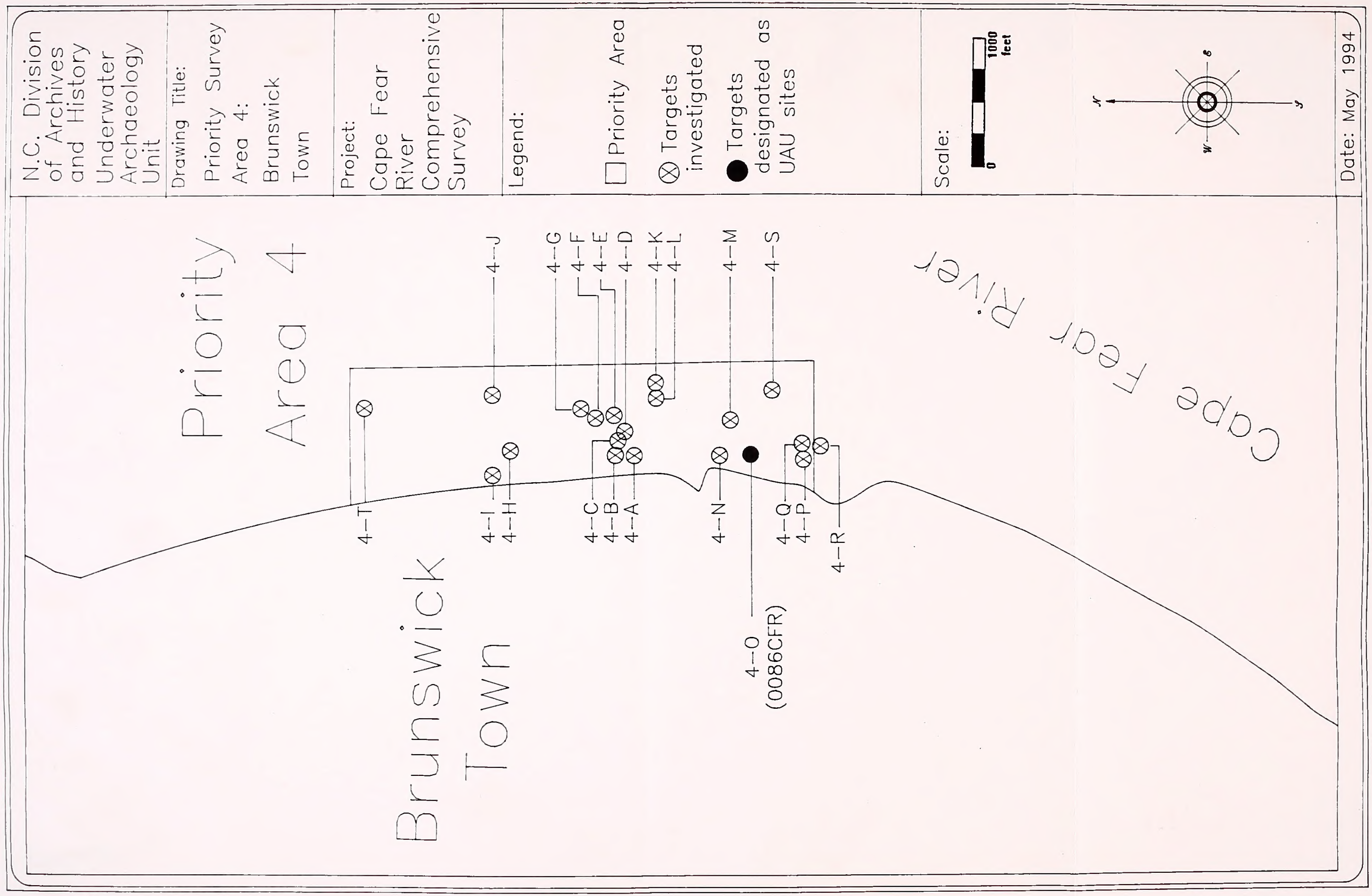
Target 4-A, located offshore of Brunswick Town, had a bipolar magnetic signature of 160 gammas over a 6-pulse duration **(Figure 51)**. No corresponding sonagram records were identified with the magnetic signature. Diver reconnaissance of the area located a 3-inch diameter metal pipe protruding 2 feet from the bottom surface. Ballast stones measuring up to 18 inches were scattered throughout the target area. Visibility averaged 2 feet, and the bottom sediment varied from hard sand to clay and soft mud over a 40-foot-square area. No further investigation was warranted for Target 4-A.

Target 4-B **State Plane Coordinates**
2320240 E, 105730 N

Target 4-B, located offshore of Brunswick Town and directly north of Target 4-A, had a positive monopolar magnetic signature of 65 gammas over a 10-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver reconnaissance of the area located a ¼-inch-diameter cable extending from the shoreline toward the channel. A shackle was located at the offshore end, where three cables branched off in different directions. Local fisherman told the survey crew the cable was used for fishing nets. Visibility in the area was 6 inches, and the bottom surface consisted of sand, mud, and shell hash. No further investigation of the target was conducted.

Target 4-C **State Plane Coordinates**
2320350 E, 105710 N

Target 4-C, located slightly east of Target 4-B offshore of Brunswick Town, had a positive monopolar magnetic signature of 80 gammas over an 8-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located a ¼-inch-diameter cable running through an eye bolt. The direction of the cable suggested that it was one of the cables located at Target 4-B. Visibility averaged 6 inches. The bottom sediment consisted of sand and clay. No further investigation was warranted for Target 4-C.


N.C. Division of Archives and History Underwater Archaeology Unit
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Project:
Cape Fear River Comprehensive Survey
Legend:
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⊗ Targets investigated
● Targets designated as UAU sites
Scale:
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N
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Date: May 1994
Priority Area 4
Brunswick Town
Cape Fear River
4-J
4-G
4-F
4-E
4-D
4-K
4-L
4-M
4-S
4-T
4-I
4-H
4-C
4-B
4-A
4-N
4-Q
4-P
4-R
4-O (0086CFR)

Figure 51. Priority Area 4 showing Target Locations.

Target 4-D	**State Plane Coordinates** **2320420 E, 105650 N**

Target 4-D, also located offshore of Brunswick Town, had a positive monopolar magnetic signature of 80 gammas over a 7-pulse duration **(Figure 51)**. No corresponding sonar images were identified in association with the magnetic signature. Diver investigation located ¼-inch-diameter cable positioned through an eye bolt. The cable located was part of Targets 4-B and 4-C. Visibility averaged 6 inches, and the bottom sediment consisted of sand and clay. No further investigation of Target 4-D was warranted.

Target 4-E	**State Plane Coordinates** **2320540 E, 105730 N**

Target 4-E, located offshore of Brunswick Town, had a negative monopolar magnetic signature of 120 gammas over a 10-pulse duration **(Figure 51)**. Corresponding sonar records indicated a single object exposed 1 foot from the bottom surface that covered an area roughly 4 feet square. Diver investigation revealed a heavily encrusted oyster bed. The oyster bed was approximately 5 feet square and 2 feet in depth. The soft mud bottom allowed the divers to use hand probes under the shell formation. No cultural material was located during the search. There was no visibility at Target 4-E. No further investigation was conducted.

Target 4-F	**State Plane Coordinates** **2320530 E, 105870 N**

Target 4-F, located offshore of Brunswick Town, had a positive monopolar magnetic signature of 220 gammas over a 7-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area did not reveal any cultural material on the bottom surface. In order to pinpoint the location of the magnetic anomaly, a diver positioned a marine magnetometer sensor over the area and then moved it along the site in a grid pattern 50 feet long and at a 10-foot lane spacing. The exact position of the magnetic anomaly was located, but a hand probe, 10 feet in length, could not reach the target. An induction dredge was attached to a centrifugal pump and used to excavate test pits to locate the anomaly. Three test pits were dug, each 3 feet in diameter, 6 feet apart, and 10 feet in depth. One disassociated plank measuring 3 feet long, 8 inches wide, and 1½ inches thick was located in the first test area at 8 feet below the bottom surface. No fasteners or fastener markings were located on the plank. A hydraulic probe was used at random locations throughout the target area to locate the source of the magnetic signal, but no cultural material was located. In each test area a layer of oyster shell was encountered 6 feet below the bottom surface. The bottom sediment was a soft mud to 4 feet below the bottom surface and a medium-soft plastic clay to a depth of at least 10 feet. The soft-mud bottom allowed for no visibility at Target 4-F. No further investigation was conducted.

Target 4-G	**State Plane Coordinates** **2320590 E, 105980 N**

Target 4-G, located offshore of Brunswick Town, had a bipolar magnetic signature of 120 gammas over a 16-pulse interval **(Figure 51)**. No corresponding sonagram records were identified with the magnetic signature. Diver reconnaissance of the area did not reveal any cultural material. A diver positioned the marine magnetometer sensor on the bottom surface and then moved it along the site in a grid pattern 50 feet in length and at a lane spacing of 10 feet. Divers positioned a line over the strongest magnetic signature that measured 30 feet in length. Using a hydraulic probe to a depth of 10 feet every 3 feet along the baseline revealed no cultural material. Bottom sediment consisted of soft mud to a depth of 4 feet below the bottom surface. Below 4 feet to at least 10 feet in depth the bottom was a medium-soft plastic clay. Oyster shells were encountered at approximately 6 feet below the bottom surface. There was no visibility at Target 4-G. No further investigation was conducted.

Target 4-H	**State Plane Coordinates** **2320280 E, 106500 N**

Target 4-H, located near the Brunswick County shoreline, had a positive monopolar magnetic signature of 65 gammas over a 5-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located a 6-inch diameter pipe protruding 2 feet off the bottom surface. A crab pot was also located in the target area. The bottom sediment consisted of sand, clay, and shell hash, and visibility was approximately 1 foot. No further investigation of Target 4-H was required.

Target 4-I	**State Plane Coordinates** **2320100 E, 106650 N**

Target 4-I, located near the Brunswick County shoreline, had a bipolar magnetic signature of 850 gammas over a 12-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the target located a metal pipe 4 inches in diameter and approximately 6 feet in length. The bottom sediment was sand, mud, and shell hash, and visibility was approximately 1 foot. No further investigation was required at Target 4-I.

Target 4-J

State Plane Coordinates
2320690 E, 106640 N

Target 4-J, located offshore of Brunswick Town, had a positive monopolar magnetic signature of 40 gammas over a 5-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the target area did not reveal the source of material generating the magnetic anomaly. The bottom sediment was soft mud, and visibility averaged 0-6 inches. No further investigation was conducted at Target 4-J.

Target 4-K

State Plane Coordinates
2320786 E, 105419 N

Target 4-K was located approximately 400 feet upriver from channel marker 31 near Brunswick Town and had a positive monopolar magnetic signature of 140 gammas over a 6-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver reconnaissance of the area did not reveal the source of material generating the magnetic signature. The bottom sediment was mud and sand, and visibility was approximately 6 inches. No further investigation was conducted at Target 4-K.

Target 4-L

State Plane Coordinates
2320667 E, 105406 N

Target 4-L was located approximately 500 feet upriver from channel marker 31 at Brunswick Town and had a positive monopolar signature of 70 gammas over a 6-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation did not reveal the material that generated the magnetic anomaly. The bottom sediment was mud and sand, and visibility was approximately 6 inches. No further investigation was conducted at Target 4-L.

Target 4-M

State Plane Coordinates
2320500 E, 104850 N

Target 4-M, located offshore of Brunswick Town, had a positive monopolar signature of 210 gammas over a 10-pulse duration **(Figure 51)**. Corresponding sonagram records indicated a scatter of debris and three linear objects exposed 1 foot off the bottom surface. Diver investigation located three 8-inch diameter pilings lying perpendicular to the channel. A single iron pipe 6 inches in diameter and 3 feet in length was also located in the target area. Visibility averaged 1 foot, with bottom sediment comprised of sand and silt. No further investigation was warranted for Target 4-M.

Target 4-N

State Plane Coordinates
2320250 E, 104940 N

Target 4-N was located near the Brunswick County shoreline and had a negative monopolar magnetic signature of 120 gammas over a 6-pulse interval **(Figure 51)**. Corresponding sonagram records indicated a large scatter of debris exposed approximately 3 feet from the bottom surface. Diver investigation of the area located several 8-inch-diameter pilings lying on the bottom surface. The pilings ranged from 4 to 8 feet in length and were scattered throughout the target area. One mooring dolphin, comprised of three pilings fastened together by a ¾-inch diameter cable at one end of the pilings, was located on the bottom surface roughly 100 feet from the shoreline. Some ballast stones were located near the shoreline during low tide. The pilings and ballast stones were probably associated with a dock structure. The bottom sediment was sand and shell with a light layer of silt. Visibility averaged 1 foot. No further investigation was warranted for Target 4-N.

Target 4-O

State Plane Coordinates
2320250 E, 104690 N

Target 4-O was located near the Brunswick County shoreline and had a bipolar magnetic signature of 700 gammas over a 16-pulse duration **(Figure 51)**. Corresponding sonagram records indicated several linear objects exposed approximately 3 feet off the bottom surface. Diver investigation of the target located the remains of a twentieth-century barge (see Site Descriptions 0086CFR). The bottom sediment was sand, clay, and silt. Visibility averaged 1 foot. Further investigation was required at Target 4-O.

Target 4-P

State Plane Coordinates
2320210 E, 104310 N

Target 4-P, located offshore of Brunswick Town, had a positive monopolar magnetic signature of 80 gammas over a 9-pulse duration **(Figure 51)**. Corresponding sonagram records indicated a large single object exposed 5 feet off the bottom surface. Diver investigation located a 2-foot diameter pipe, only partially exposed, and a rock structure exposed 4 feet off the bottom surface. The bottom sediment was sand and rock, with visibility averaging 1 foot. No further investigation was required.

Target 4-Q

State Plane Coordinates
2320330 E, 104320 N

Target 4-Q, located offshore of Brunswick Town, had a multi-component magnetic signature of 140 gammas over a 17-pulse duration **(Figure 51)**. Corresponding sonagram records indicated a single linear object exposed 2 feet off the bottom surface. Diver reconnaissance of the area located a pipe 24 inches in diameter and 4 feet in length. Also located in the investigation area was a piece of ¾-inch diameter cable 2 feet in length. The bottom sediment consisted of sand and clay, and visibility averaged 1 foot. No further investigation was warranted for Target 4-Q.

Target 4-R

State Plane Coordinates
2320310 E, 104180 N

Target 4-R, located offshore of Brunswick Town and south of Target 4-Q, had a bipolar magnetic signature of 120 gammas over a 7-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area discovered a coil of ¾-inch-diameter cable. Visibility in the area was 1 foot, and the bottom sediment consisted of sand and clay. No further investigation of Target 4-R was necessary.

Target 4-S

State Plane Coordinates
2320728 E, 104536 N

Target 4-S, located offshore of Brunswick Town, had a positive monopolar magnetic signature of 110 gammas over a 7-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area did not reveal the source of material generating the magnetic signature. The bottom sediment consisted of sand and clay, with visibility of approximately 1 foot. No further investigation was conducted at Target 4-S.

Target 4-T

State Plane Coordinates
2320600 E, 107602 N

Target 4-T, the most northern of the targets located offshore of Brunswick Town, had a bipolar magnetic signature of 80 gammas over a 10-pulse duration **(Figure 51)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation located no material generating the magnetic anomaly. The bottom sediment was mud, and visibility was 0 to 6 inches. No further investigation was conducted at Target 4-T.

PRIORITY AREA 5: Campbell Island
Priority Area 5 encompassed both the north and east sides of Campbell Island. The area extended from the west channel toe to the high-water mark on the east side of the island. The maximum width of the survey area was 1,100 feet, and the length was 8,000 feet. Campbell Island was selected as a survey area based on accounts of historical maritime activity at the island, as well as the reported loss of the steamers *Washington* and *Blanche*, as well as an unidentified wreck shown on an 1823 chart. Fourteen targets were investigated in Priority Area 5 **(Figure 52)**.

Target 5-A	**State Plane Coordinates** **2321500 E, 136096 N**

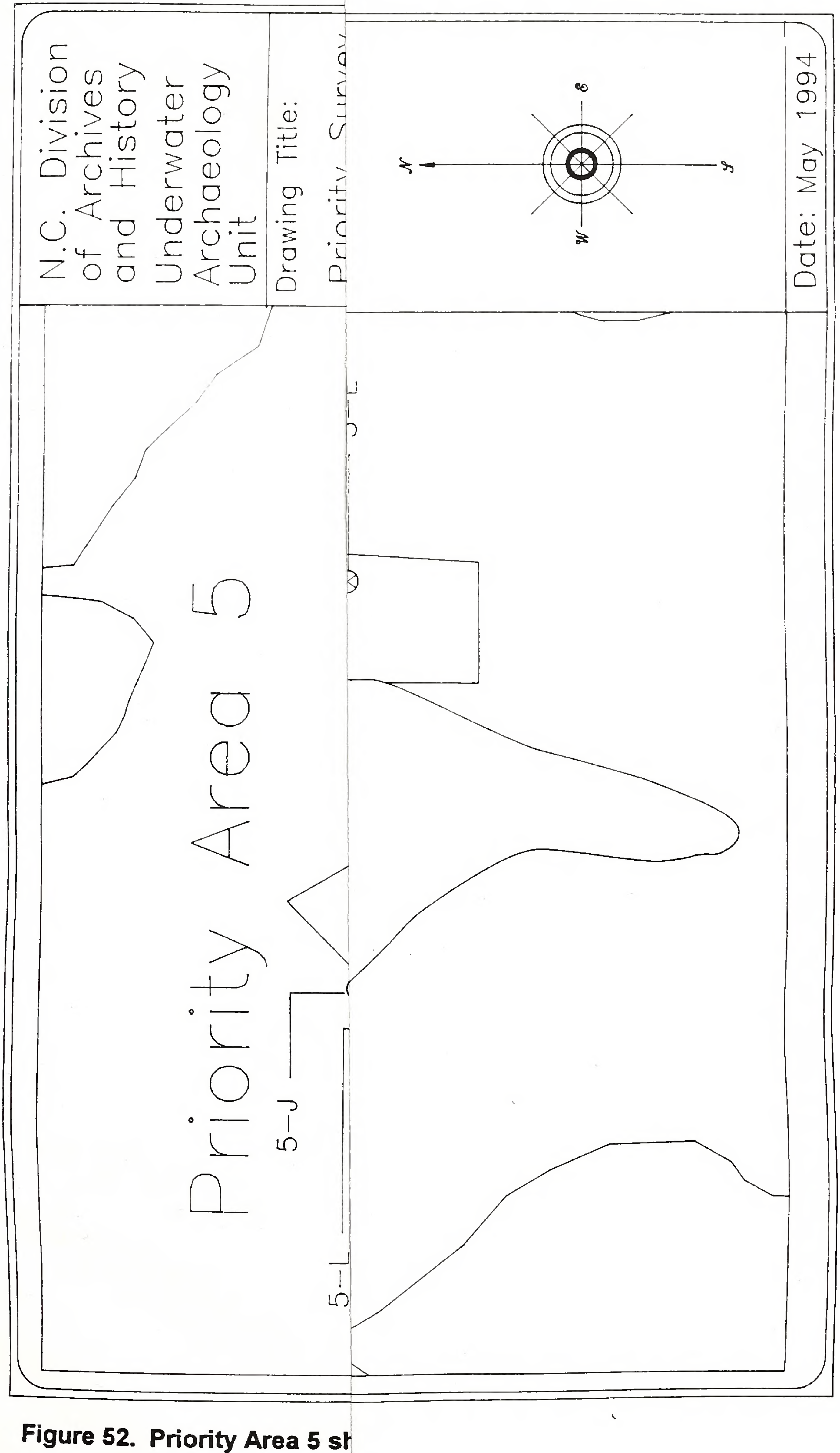
Target 5-A was located near the eastern shoreline of Campbell Island and had a bipolar magnetic signature of 820 gammas over an 11-pulse duration **(Figure 52)**. Corresponding sonagram records indicated a large scatter of debris covering a 100-foot diameter and exposed 3 to 4 feet off the bottom surface. Diver reconnaissance of the area located several rocks approximately 4 to 5 feet in diameter exposed 3 feet off the bottom surface. Buried 1 foot in the mud bottom was a piece of steel 6 inches in width and 3 feet long. Also located in the target area was a 3-foot-long piece of ½-inch diameter cable. Visibility averaged 2 feet. No further investigation was required at Target 5-A.

Target 5-B	**State Plane Coordinates** **2321660 E, 135478 N**

Target 5-B, located slightly off the eastern shoreline of Campbell Island, had a negative monopolar magnetic signature of 650 gammas over a 10-pulse interval **(Figure 52)**. Corresponding sonagram images revealed a large scatter of debris exposed up to 6 feet off the bottom surface. Diver investigation of the area located a scatter of 2- to 3-foot-diameter rocks, several 2-foot-diameter trees, three 8- to 10-inch diameter pilings lying on the bottom surface, and a rock ledge that dropped off 6 feet and ran parallel to the channel. The bottom sediment consisted of rock, clay, and mud, and visibility ranged from 0 to 6 inches. No further investigation of Target 5-B was warranted.

Target 5-C	**State Plane Coordinates** **2321320 E, 135200 N**

Target 5-C was located on the eastern shoreline of Campbell Island and had a positive monopolar magnetic signature of 300 gammas over a 9-pulse duration **(Figure 52)**. No corresponding sonagram records were associated with the magnetic signature because of the shallow depth of the target. Archaeological investigation located a vessel


N.C. Division of Archives and History
Underwater Archaeology Unit
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Date: May 1994
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Figure 52. Priority Area 5 sh

PRIORITY AREA 5: Campbell Island

Priority Area 5 encompassed both the north and east sides of Campbell Island. The area extended from the west channel toe to the high-water mark on the east side of the island. The maximum width of the survey area was 1,100 feet, and the length was 8,000 feet. Campbell Island was selected as a survey area based on accounts of historical maritime activity at the island, as well as the reported loss of the steamers *Washington* and *Blanche*, as well as an unidentified wreck shown on an 1823 chart. Fourteen targets were investigated in Priority Area 5 **(Figure 52)**.

Target 5-A	**State Plane Coordinates** **2321500 E, 136096 N**

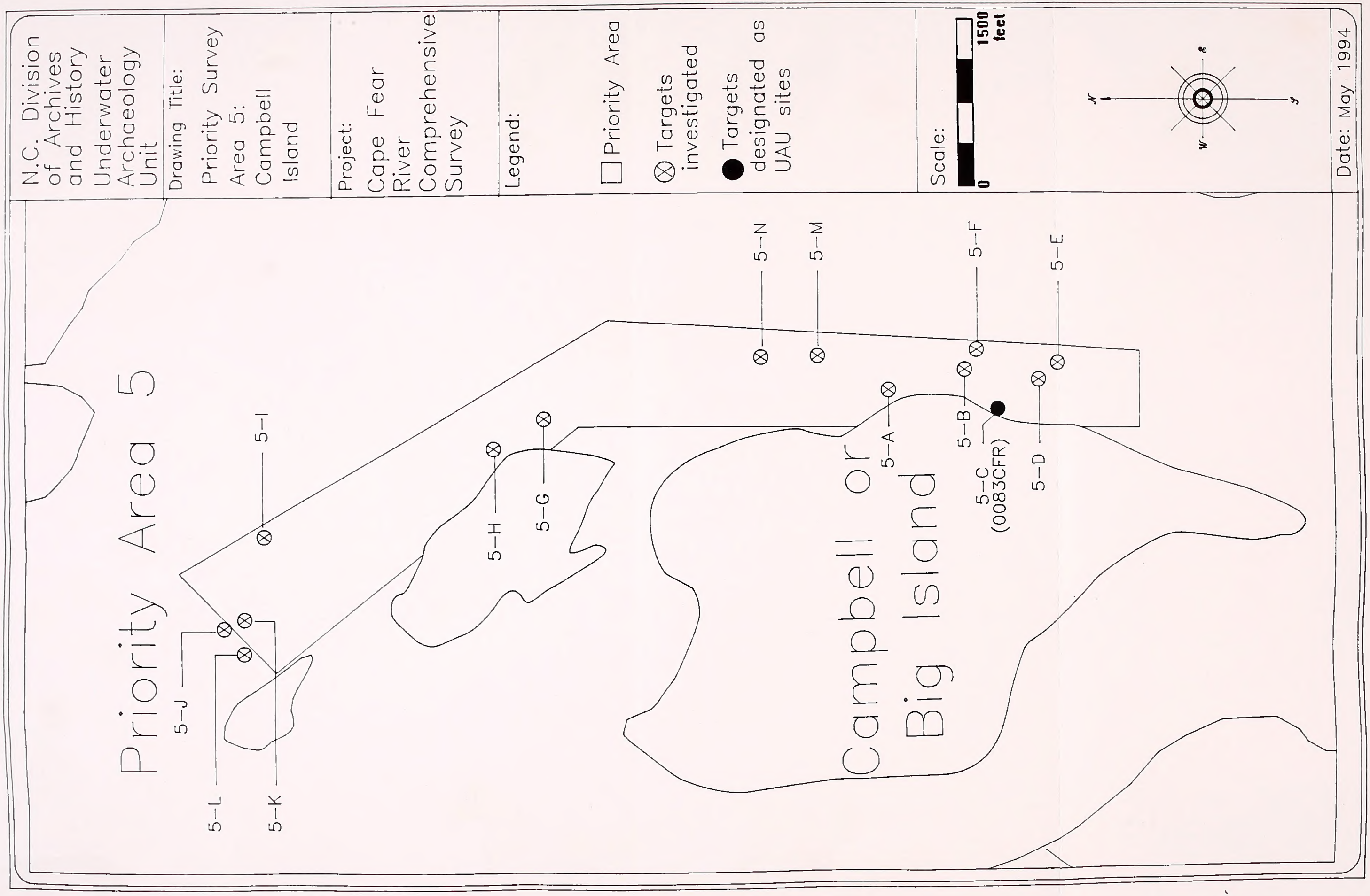
Target 5-A was located near the eastern shoreline of Campbell Island and had a bipolar magnetic signature of 820 gammas over an 11-pulse duration **(Figure 52)**. Corresponding sonagram records indicated a large scatter of debris covering a 100-foot diameter and exposed 3 to 4 feet off the bottom surface. Diver reconnaissance of the area located several rocks approximately 4 to 5 feet in diameter exposed 3 feet off the bottom surface. Buried 1 foot in the mud bottom was a piece of steel 6 inches in width and 3 feet long. Also located in the target area was a 3-foot-long piece of ½-inch diameter cable. Visibility averaged 2 feet. No further investigation was required at Target 5-A.

Target 5-B	**State Plane Coordinates** **2321660 E, 135478 N**

Target 5-B, located slightly off the eastern shoreline of Campbell Island, had a negative monopolar magnetic signature of 650 gammas over a 10-pulse interval **(Figure 52)**. Corresponding sonagram images revealed a large scatter of debris exposed up to 6 feet off the bottom surface. Diver investigation of the area located a scatter of 2- to 3-foot-diameter rocks, several 2-foot-diameter trees, three 8- to 10-inch diameter pilings lying on the bottom surface, and a rock ledge that dropped off 6 feet and ran parallel to the channel. The bottom sediment consisted of rock, clay, and mud, and visibility ranged from 0 to 6 inches. No further investigation of Target 5-B was warranted.

Target 5-C	**State Plane Coordinates** **2321320 E, 135200 N**

Target 5-C was located on the eastern shoreline of Campbell Island and had a positive monopolar magnetic signature of 300 gammas over a 9-pulse duration **(Figure 52)**. No corresponding sonagram records were associated with the magnetic signature because of the shallow depth of the target. Archaeological investigation located a vessel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Cape Fear River Comprehensive Survey
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Date: May 1994
Priority Area 5
Campbell or Big Island
5-A
5-B
5-C (0083CFR)
5-D
5-E
5-F
5-G
5-H
5-I
5-J
5-K
5-L
5-M
5-N

Figure 52. Priority Area 5 showing Target Locations.

partially exposed on the shoreline at low tide (see Site Descriptions 0083CFR). The bottom sediment was sand, clay, and mud, and visibility was 1 foot. Further investigation was required at Target 5-C.

Target 5-D **State Plane Coordinates**
2321565 E, 134860 N

Target 5-D, located off the eastern shoreline of Campbell Island, had a multi-component magnetic signature of 1,550 gammas over a 16-pulse duration **(Figure 52)**. Corresponding sonagram records indicated a scour in the bottom surface, roughly 20 feet by 10 feet, parallel to the channel. Diver investigation of the area located a 24-inch-diameter piece of metal dredge pipe and a bundle of ¾-inch cable. The bottom sediment was clay and mud, and visibility was approximately 1 foot. No further investigating was conducted at Target 5-D.

Target 5-E **State Plane Coordinates**
2321700 E, 134695 N

Target 5-E, the southernmost target located off the eastern shoreline of Campbell Island, had a bipolar magnetic signature of 1,020 gammas over a 20-pulse duration **(Figure 52)**. Corresponding sonagram records indicated a cluster of large and small objects covering a 40-foot-diameter area. Some of the objects were exposed up to 7 feet off the bottom surface. Diver reconnaissance of the area discovered a single metal dredge pipe, 24 inches in diameter, in the middle of a cluster of rocks 2 to 5 feet in diameter. A rock ledge was also discovered 10 feet from the cluster, positioned parallel to the channel. The bottom sediment was mud, clay, and rock, and visibility was between 0 and 6 inches. No further investigation was warranted for Target 5-E.

Target 5-F **State Plane Coordinates**
2321820 E, 135372 N

Target 5-F, located off the eastern shoreline of Campbell Island, had a multi-component magnetic signature of 490 gammas over a 30-pulse duration **(Figure 52)**. Corresponding sonagram records indicated a scatter of debris and a single linear object exposed approximately 3 feet off the bottom surface. Diver reconnaissance of the area located a large scatter of rocks averaging 3 feet in diameter, several pieces of ¾-inch-diameter cable 3 feet in length, and a log 30 inches in diameter and 15 feet in length. The bottom sediment was mud and rock, and visibility averaged 0 to 6 inches. No further investigation was warranted at Target 5-F.

Target 5-G **State Plane Coordinates**
2321264 E, 138974 N

Target 5-G, located off the eastern shoreline of Campbell Island, had a negative monopolar magnetic signature of 140 gammas over a 7-pulse duration **(Figure 52)**. Corresponding sonagram records indicated a single linear object exposed 1 foot off the bottom surface. Surrounding the object was a L-shaped scour approximately 15 feet in length. Diver investigation of the area located a section of metal dredge pipe 10 feet in length. The bottom sediment was mud and clay, and visibility was approximately 1 foot. No further investigation was conducted at Target 5-G.

Target 5-H **State Plane Coordinates**
2321018 E, 139398 N

Target 5-H, located off the northeastern shoreline of Campbell Island, had a bipolar magnetic signature of 560 gammas over a 9-pulse duration **(Figure 52)**. Corresponding sonagram records indicated a single object approximately 4 feet by 4 feet exposed 2 feet off the bottom surface. Diver reconnaissance of the area discovered a section of pipe, approximately 3 feet in diameter, with welded seams, exposed at a 45 degree angle 2 feet off the bottom surface. The bottom sediment was mud and clay, and visibility averaged 1 foot. No further investigation of Target 5-H was warranted.

Target 5-I **State Plane Coordinates**
2320304 E, 141280 N

Target 5-I, located north of Campbell Island, had a multi-component signature of 400 gammas over a 15-pulse duration **(Figure 52)**. Corresponding sonagram records indicated three linear objects approximately 30 feet in length exposed 2 feet off the bottom surface. Two of the objects were positioned parallel to one another and the channel, and the third object was perpendicular to the channel. A large bottom scour was also recorded on the east and west sides of the target. Diver reconnaissance of the area located two metal pipes, approximately 30 inches in diameter and 24 feet in length, positioned parallel to the channel. A 24-inch-diameter log, roughly 7 feet in length, was located perpendicular to the pipes on the channel side of the target. Depressions in the bottom surface were noted on each side of the pipes, with a small bundle of ¾-inch-diameter cable exposed in the westernmost depression. The bottom sediment consisted of clay and a fine silt layer, and visibility was between 6 inches and 2 feet. No further investigation was warranted for Target 5-I.

Target 5-J **State Plane Coordinates**
2319542 E, 141620 N

Target 5-J, located north of Campbell Island, had a positive monopolar magnetic signature of 360 gammas over a 20-pulse interval **(Figure 52)**. Corresponding sonagram records indicated a scatter of debris and a linear object approximately 10 feet in length exposed 1 foot off the bottom surface. A scour in the bottom surface was recorded approximately 10 feet downriver of the target. Diver investigation of the area discovered a log or piling, 8 inches in diameter, and a piece of ½-inch-diameter cable 4 feet long. The bottom sediment was mud and clay, and visibility averaged 6 inches. No further investigation was conducted at Target 5-J.

Target 5-K **State Plane Coordinates**
2319612 E, 141440 N

Target 5-K, located north of Campbell Island, had a negative monopolar magnetic signature of 45 gammas over a 7-pulse duration **(Figure 52)**. Corresponding sonagram records indicated two objects approximately 10 feet apart, exposed 3 feet off the bottom surface. Diver investigation of the area located two sections of pipe, 30 inches in diameter and 4 feet in length. The bottom sediment consisted of mud and clay, and visibility was 1 foot. No further investigation was warranted for Target 5-K.

Target 5-L **State Plane Coordinates**
2319346 E, 141468 N

Target 5-L, located north of Campbell Island, had a bipolar magnetic signature of 800 gammas over a 12-pulse duration **(Figure 52)**. Corresponding sonagram records indicated two linear objects exposed 2 and 4 feet off the bottom surface and positioned perpendicular to the channel. A scour in the bottom surface was recorded on the channel side of the target. Diver reconnaissance of the area located a small bundle of ½-inch-diameter cable and a tree approximately 12 inches in diameter and 15 feet in length. The bottom sediment was mud and clay, and visibility was approximately 1 foot. No further investigation was warranted for Target 5-L.

Target 5-M **State Plane Coordinates**
2321780 E, 136685 N

Target 5-M, located off the eastern shoreline of Campbell Island, had a bipolar magnetic signature of 900 gammas over a 10-pulse duration **(Figure 52)**. Corresponding sonagram records indicated two linear objects exposed 2 feet from the bottom surface, lying end to end and positioned parallel to the channel. Located approximately 30 feet downriver from the target was a scatter of debris. Diver investigation of the area located three sections of dredge pipe lying end to end and parallel to the channel. Downriver from the pipe was a scatter of rocks averaging 3 to 4 feet in diameter and covering a 20-foot-diameter area. The bottom sediment was mostly clay, and visibility was 1 foot. No further investigation was warranted for Target 5-M.

Target 5-N	**State Plane Coordinates** **2321790 E, 137165 N**

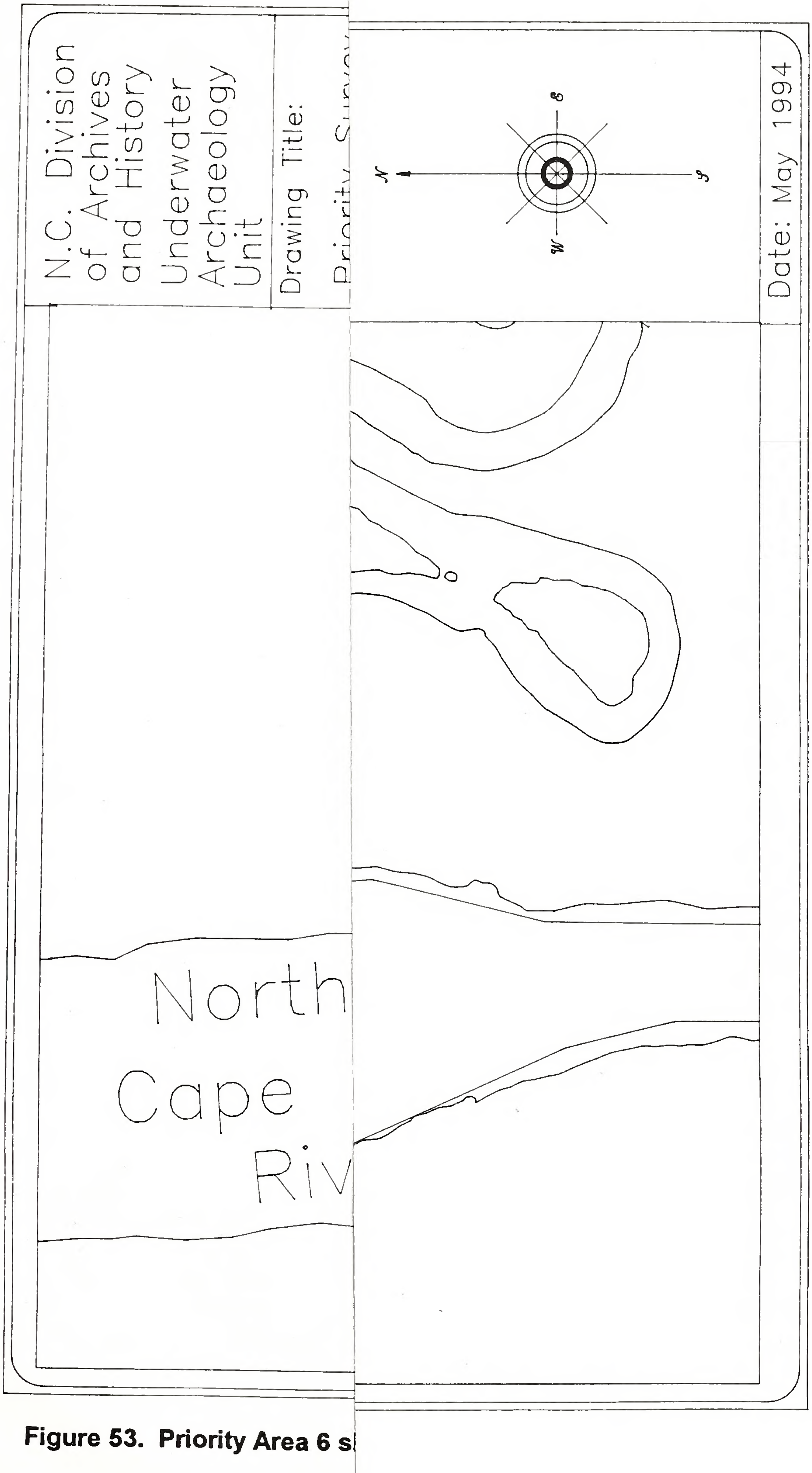
Target 5-N, located off the eastern shoreline of Campbell Island, had a multi-component magnetic signature of 1,600 gammas over a 17-pulse duration **(Figure 52)**. Corresponding sonagram records indicated two concentrations of debris scattered on the bottom surface and exposed nearly 5 feet off the bottom surface. The two target areas were approximately 20 feet apart but together covered a 75-foot diameter area. Diver reconnaissance of the area located two rock scatters exposed up to 4 feet off the bottom surface. A bundle of ¾-inch-diameter cable was located at the upriver end of the target was a 20-foot-long piece of ¾-inch-diameter cable lying in both of the rock scatters. The bottom sediment was clay and rock, and visibility averaged 1 foot. No further investigation was required at Target 5-N.

PRIORITY AREA 6: Twenty-five Foot Channel Project

Priority Area 6 was the western side of the Northeast Cape Fear River from the mouth of Smiths Creek to the northern end of the 25-foot project. The area extended from the east channel toe to the high-water mark on the east bank of the river and included all of the northernmost turning basin. That area was selected for survey based on historic maritime activities associated with lumber mills and fertilizer plants in the vicinity, as well as charted shipwrecks shown on early twentieth-century USACOE survey maps. The maximum width of the survey area was 900 feet, and the length was 3,600 feet. Fourteen targets were investigated in Priority Area 6 **(Figure 53)**.

Target 6-A	**State Plane Coordinates** **2317030 E, 191480 N**

Target 6-A had a bipolar magnetic signature of 145 gammas over an 8-pulse interval **(Figure 53)**. Corresponding sonagram records indicated a light scatter of debris on the bottom surface. Diver investigation of the area located several tree branches and two 1- by 6- inch planks. No evidence of fasteners were located on the wood planks. The diver investigation failed to locate any object that generated the magnetic anomaly. The bottom sediment was sand and silt, and the visibility was approximately 1 to 2 feet. No further investigation was conducted at Target 6-A.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Date: May 1994
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Figure 53. Priority Area 6 s

approximately 30 feet downriver from the target was a scatter of debris. Diver investigation of the area located three sections of dredge pipe lying end to end and parallel to the channel. Downriver from the pipe was a scatter of rocks averaging 3 to 4 feet in diameter and covering a 20-foot-diameter area. The bottom sediment was mostly clay, and visibility was 1 foot. No further investigation was warranted for Target 5-M.

Target 5-N	**State Plane Coordinates** **2321790 E, 137165 N**

Target 5-N, located off the eastern shoreline of Campbell Island, had a multi-component magnetic signature of 1,600 gammas over a 17-pulse duration **(Figure 52)**. Corresponding sonagram records indicated two concentrations of debris scattered on the bottom surface and exposed nearly 5 feet off the bottom surface. The two target areas were approximately 20 feet apart but together covered a 75-foot diameter area. Diver reconnaissance of the area located two rock scatters exposed up to 4 feet off the bottom surface. A bundle of ¾-inch-diameter cable was located at the upriver end of the target was a 20-foot-long piece of ¾-inch-diameter cable lying in both of the rock scatters. The bottom sediment was clay and rock, and visibility averaged 1 foot. No further investigation was required at Target 5-N.

PRIORITY AREA 6: Twenty-five Foot Channel Project

Priority Area 6 was the western side of the Northeast Cape Fear River from the mouth of Smiths Creek to the northern end of the 25-foot project. The area extended from the east channel toe to the high-water mark on the east bank of the river and included all of the northernmost turning basin. That area was selected for survey based on historic maritime activities associated with lumber mills and fertilizer plants in the vicinity, as well as charted shipwrecks shown on early twentieth-century USACOE survey maps. The maximum width of the survey area was 900 feet, and the length was 3,600 feet. Fourteen targets were investigated in Priority Area 6 **(Figure 53)**.

Target 6-A	**State Plane Coordinates** **2317030 E, 191480 N**

Target 6-A had a bipolar magnetic signature of 145 gammas over an 8-pulse interval **(Figure 53)**. Corresponding sonagram records indicated a light scatter of debris on the bottom surface. Diver investigation of the area located several tree branches and two 1- by 6- inch planks. No evidence of fasteners were located on the wood planks. The diver investigation failed to locate any object that generated the magnetic anomaly. The bottom sediment was sand and silt, and the visibility was approximately 1 to 2 feet. No further investigation was conducted at Target 6-A.

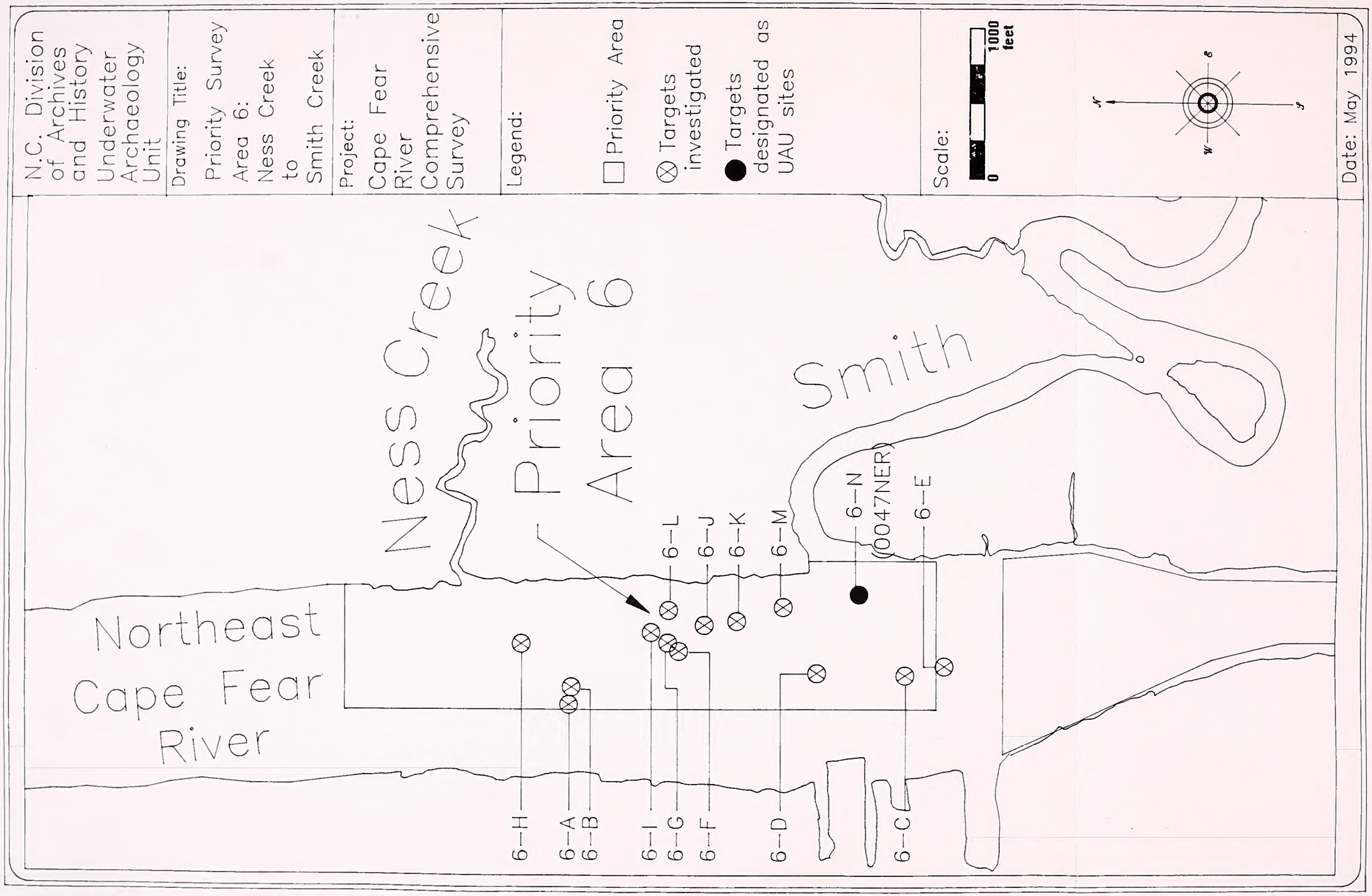

N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Priority Survey Area 6: Ness Creek to Smith Creek
Project:
Cape Fear River Comprehensive Survey
Legend:
Priority Area
Targets investigated
Targets designated as UAU sites
Scale:
0
1000 feet
N
E
S
W
Date: May 1994
Ness Creek
Priority Area 6
Smith
Northeast Cape Fear River
6—L
6—J
6—K
6—M
6—N (0047NER)
6—E
6—H
6—A
6—B
6—I
6—G
6—F
6—D
6—C

Figure 53. Priority Area 6 showing Target Locations.

Target 6-B

State Plane Coordinates
2317150 E, 191460 N

Target 6-B had a bipolar magnetic signature of 550 gammas over a 6-pulse duration **(Figure 53)**. Corresponding sonagram records indicated a light scatter of debris on the bottom surface. Diver reconnaissance of the area located a single piece of ¼-inch-diameter solid iron rod, or rebar, and a crab pot. The bottom sediment was sand and silt, and the visibility was approximately 1 to 2 feet. No further investigation was required at Target 6-B.

Target 6-C

State Plane Coordinates
23117230 E, 189210 N

Target 6-C had a negative monopolar magnetic signature of 60 gammas over an 8-pulse interval **(Figure 53)**. Corresponding sonagram records indicated two linear objects exposed roughly 2 feet off the bottom surface. Diver investigation of the area located three logs approximately 8 inches in diameter lying partially exposed on a silty sand bottom; visibility was 1 foot. The diver investigation did not locate any source of material generating the magnetic anomaly. No further investigation was conducted at Target 6-C.

Target 6-D

State Plane Coordinates
2317240 E, 189800 N

Target 6-D had a bipolar magnetic signature of 580 gammas over an 8-pulse interval **(Figure 53)**. Corresponding sonagram records indicated a single linear object exposed 1 foot off the bottom surface. Diver reconnaissance of the area located a 10-inch-diameter log approximately 7 feet in length, but not the material generating the magnetic anomaly. The bottom sediment was sand with a fine layer of silt, and visibility averaged 1 to 2 feet. No further investigation for Target 6-D was conducted.

Target 6-E

State Plane Coordinates
2317280 E, 188950 N

Target 6-E had a positive monopolar magnetic signature of 120 gammas over a 7-pulse duration **(Figure 53)**. Corresponding sonagram records indicated a single linear object with a scour on the bottom surface parallel to the channel. Diver investigation of the target located a 6-inch-diameter fiber hawser 30 feet in length and a small scour in the sand bottom running parallel to the channel. Visibility was approximately 1 foot. No material that generated the magnetic anomaly was located. No further investigation was conducted at Target 6-E.

Target 6-F

State Plane Coordinates
2317390 E, 190740 N

Target 6-F had a negative monopolar magnetic signature of 340 gammas over a 10-pulse interval **(Figure 53)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation located a ¾-inch-diameter cable partially exposed in the silty sand bottom. Visibility was approximately 1 foot. No further investigation was required at Target 6-F.

Target 6-G

State Plane Coordinates
2317450 E, 190810 N

Target 6-G had a negative monopolar magnetic signature of 360 gammas over a 16-pulse duration **(Figure 53)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located a ¾-inch cable approximately 40 feet in length. The bottom sediment was sand and silt, and visibility was 1 foot. No further investigation was warranted at Target 6-G.

Target 6-H

State Plane Coordinates
2317440 E, 191800 N

Target 6-H had a negative monopolar magnetic signature of 340 gammas over a 12-pulse duration **(Figure 53)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located 50 feet of 1-inch-diameter cable. The bottom sediment was sand and silt, and visibility averaged 1 foot. No further investigation of Target 6-H was warranted.

Target 6-I

State Plane Coordinates
2317520 E, 190920 N

Target 6-I had a positive monopolar magnetic signature of 210 gammas over an 11-pulse duration **(Figure 53)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation located a ¾-inch-diameter cable partially exposed in the silty sand bottom. Visibility was approximately 1 foot. No further investigation was required at Target 6-I.

Target 6-J **State Plane Coordinates**
2317560 E, 190560 N

Target 6-J had a negative monopolar magnetic signature of 70 gammas over an 8-pulse duration **(Figure 53)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver reconnaissance of the area did not reveal any material associated with the magnetic anomaly. The bottom sediment was sand and mud, and visibility averaged 1 foot. No further investigation was conducted at Target 6-J.

Target 6-K **State Plane Coordinates**
2317590 E, 190340 N

Target 6-K had a bipolar magnetic signature of 840 gammas over an 8-pulse duration **(Figure 53)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver reconnaissance of the area located a 5-foot-long cast iron engine block, probably diesel, fastened to two concrete blocks that measured 6 feet by 2 feet by 2 feet. An iron strap was fastened around each concrete block, and a ¾-inch chain connected the blocks together. The bottom sediment was sand and mud, and visibility averaged 1 foot. The engine and concrete blocks were probably used as a mooring weight for barges. No further investigation was warranted for Target 6-K.

Target 6-L **State Plane Coordinates**
2317670 E, 190810 N

Target 6-L had a bipolar magnetic signature of 500 gammas over an 11-pulse interval **(Figure 53)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located two 3-foot-diameter metal pontoons 8 feet in length, connected by two I-beams. The I-beams were welded to the pontoons, and the pontoons had welded seams. The bottom sediment was sand and silt, and visibility averaged 1 foot. The structure dated from the mid- to late twentieth century and was probably a dredge pipe float or a small work barge. No further investigation of Target 6-L was warranted.

Target 6-M **State Plane Coordinates**
2317690 E, 190030 N

Target 6-M had a multi-component magnetic signature of 1,800 gammas over a 15-pulse interval **(Figure 53)**. No corresponding sonagram records were identified with the magnetic signature. Diver reconnaissance of the area located a 16-foot piece of dredge pipe approximately 18 inches in diameter. The bottom sediment was sand and silt, and visibility averaged 1 foot. No further investigation was required at Target 6-M.

Target 6-N	**State Plane Coordinates**
	2317770 E, 189525 N

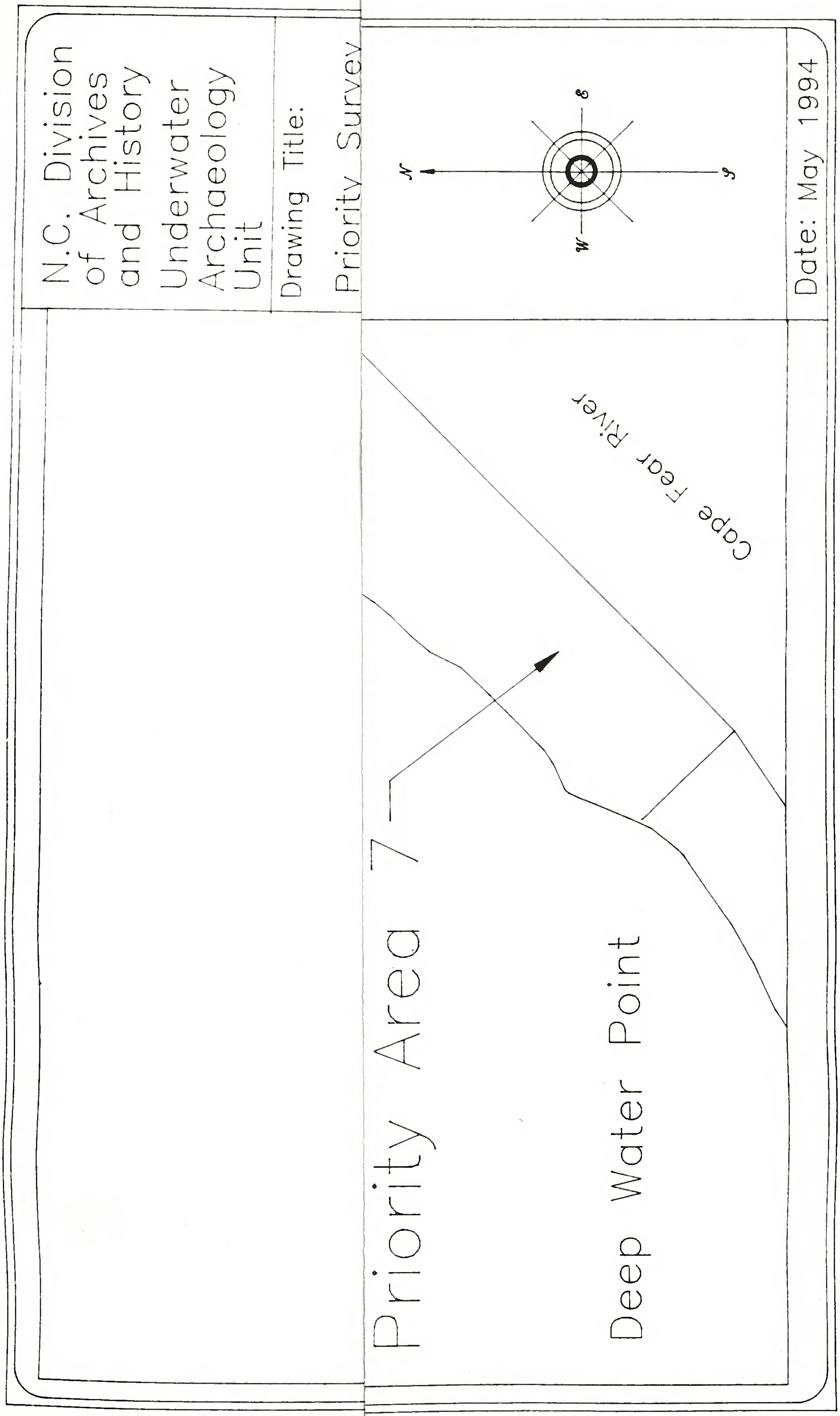
Target 6-N had a bipolar magnetic signature of 940 gammas over a 7-pulse duration **(Figure 53)**. Corresponding sonagram records indicated an object exposed approximately 3 feet above the bottom surface and covering an area approximately 20 feet by 40 feet. Diver reconnaissance of the area located the remains of a small wooden vessel (see Site Descriptions 0047NER). The bottom sediment was mostly mud, and visibility was 6 inches to 1 foot. Further investigation was required at Target 6-N.

PRIORITY AREA 7: Price's Creek

Priority Area 7 included the west side of the Lower Swash Channel from Price's Creek to Deep Water Point **(Figure 54)**. The area extended from the west channel toe to the high-water mark on the west bank. The maximum width of the survey area was 1,000 feet, and the length was 3,500 feet. Twelve anomalies were determined to require further investigation in Priority Area 7. Before diving activities were initiated, the area was surveyed using the side-scan sonar. Corresponding sonagram records identified the twelve anomalies as being associated with mid- to late twentieth-century material such as pipelines, dredge pipe, and cable. Because of time constraints, no further investigation of Priority Area 7 was undertaken.

PRIORITY AREA 8: Fourth East Jetty

Priority Area 8 covered the mouth of the Brunswick River up to channel marker 55, at the Fourth East Jetty Range. The area extended from the west channel toe to the high-water mark on the east side of Eagles Island. That portion of the river was the location of Civil War fortifications and obstructions, including three vessels that were sunk to block the channel. The maximum width of the survey area was 800 feet, and the length was 6,000 feet. In Priority Area 8 a total of six magnetic and four acoustic anomalies were recorded. The side-scan sonar confirmed that four of the six magnetic anomalies were associated with cable crossings or dredge pipe. No corresponding sonagram records were identified in association with the two remaining magnetic signatures. The four acoustic anomalies had no corresponding magnetic signatures **(Figure 55)**. Since it was unlikely that anomalies in Priority Area 8 represented significant sites, no further investigation was conducted.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Date: May 1994
Cape Fear River
Priority Area 7
Deep Water Point

Figure 54. Priority Area 7 s

pipe approximately 18 inches in diameter. The bottom sediment was sand and silt, and visibility averaged 1 foot. No further investigation was required at Target 6-M.

Target 6-N	**State Plane Coordinates** **2317770 E, 189525 N**

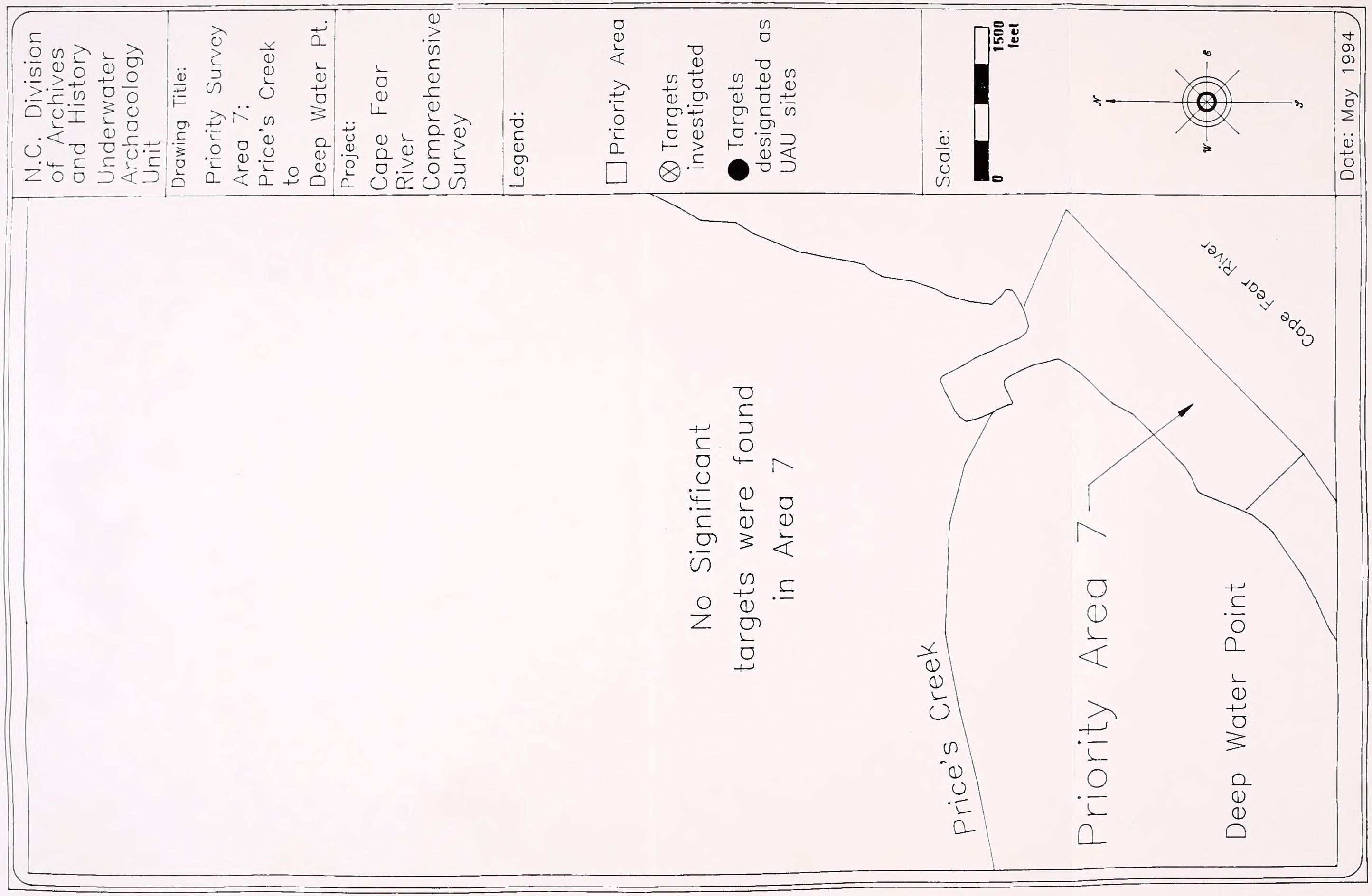
Target 6-N had a bipolar magnetic signature of 940 gammas over a 7-pulse duration **(Figure 53)**. Corresponding sonagram records indicated an object exposed approximately 3 feet above the bottom surface and covering an area approximately 20 feet by 40 feet. Diver reconnaissance of the area located the remains of a small wooden vessel (see Site Descriptions 0047NER). The bottom sediment was mostly mud, and visibility was 6 inches to 1 foot. Further investigation was required at Target 6-N.

PRIORITY AREA 7: Price's Creek

Priority Area 7 included the west side of the Lower Swash Channel from Price's Creek to Deep Water Point **(Figure 54)**. The area extended from the west channel toe to the high-water mark on the west bank. The maximum width of the survey area was 1,000 feet, and the length was 3,500 feet. Twelve anomalies were determined to require further investigation in Priority Area 7. Before diving activities were initiated, the area was surveyed using the side-scan sonar. Corresponding sonagram records identified the twelve anomalies as being associated with mid- to late twentieth-century material such as pipelines, dredge pipe, and cable. Because of time constraints, no further investigation of Priority Area 7 was undertaken.

PRIORITY AREA 8: Fourth East Jetty

Priority Area 8 covered the mouth of the Brunswick River up to channel marker 55, at the Fourth East Jetty Range. The area extended from the west channel toe to the high-water mark on the east side of Eagles Island. That portion of the river was the location of Civil War fortifications and obstructions, including three vessels that were sunk to block the channel. The maximum width of the survey area was 800 feet, and the length was 6,000 feet. In Priority Area 8 a total of six magnetic and four acoustic anomalies were recorded. The side-scan sonar confirmed that four of the six magnetic anomalies were associated with cable crossings or dredge pipe. No corresponding sonagram records were identified in association with the two remaining magnetic signatures. The four acoustic anomalies had no corresponding magnetic signatures **(Figure 55)**. Since it was unlikely that anomalies in Priority Area 8 represented significant sites, no further investigation was conducted.


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Priority Survey Area 7: Price's Creek to Deep Water Pt.
Project:
Cape Fear River Comprehensive Survey
Legend:
☐ Priority Area
⊗ Targets investigated
● Targets designated as UAU sites
Scale:
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1500 feet
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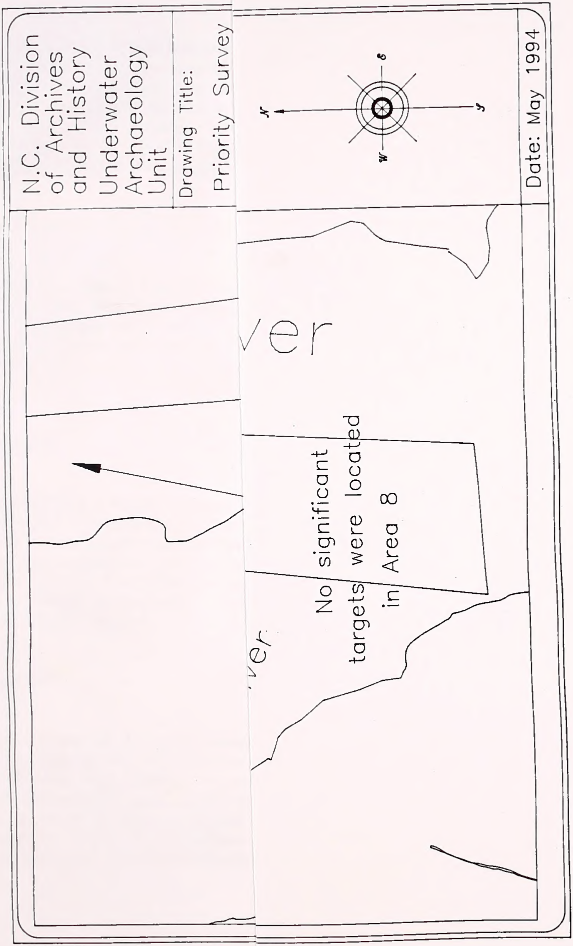
Date: May 1994
Cape Fear River
No Significant targets were found in Area 7
Price's Creek
Priority Area 7
Deep Water Point

Figure 54. Priority Area 7 showing Target Locations.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Underwater Archaeology Unit
Drawing Title:
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No significant targets were located in Area 8
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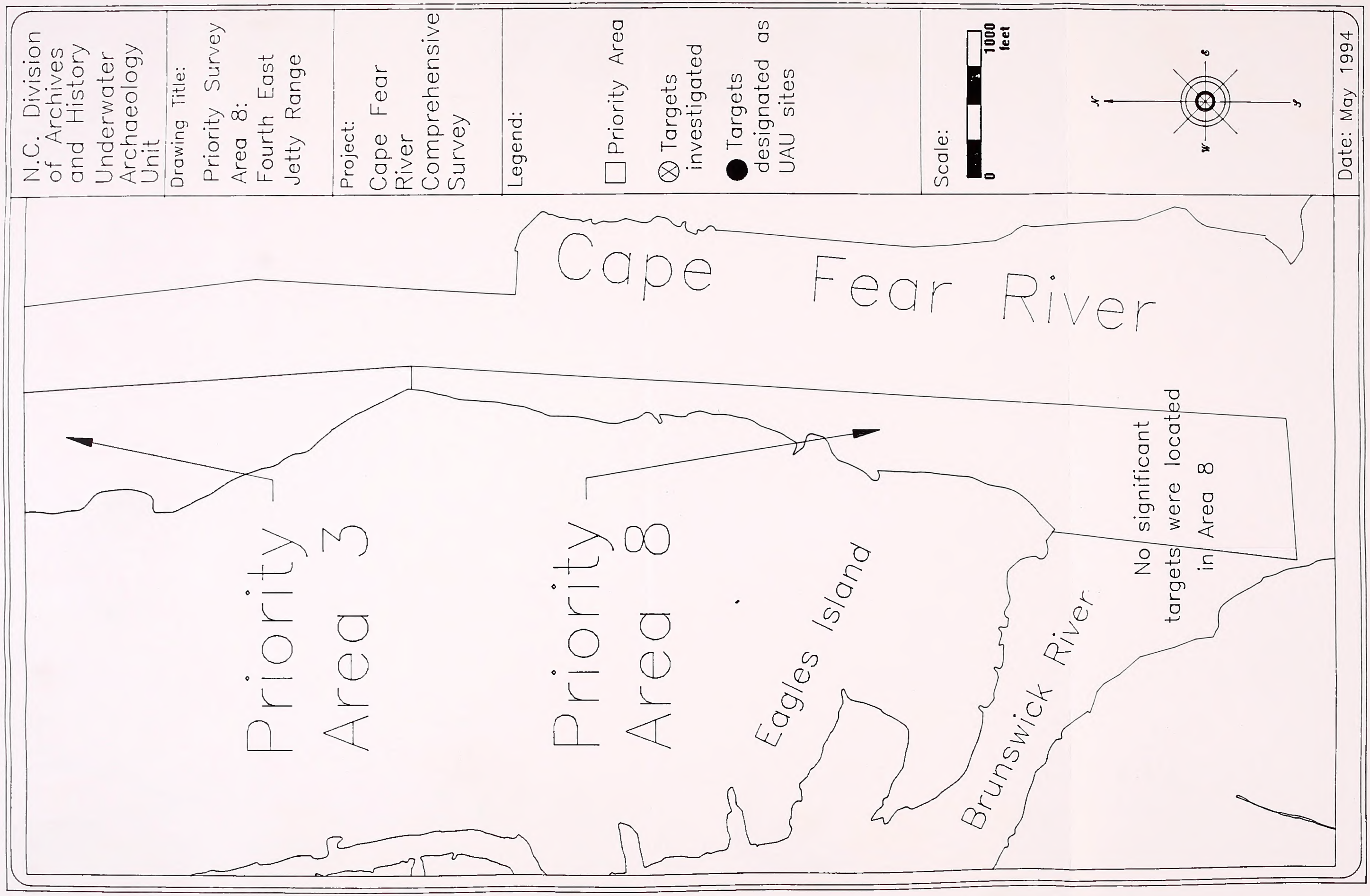
Figure 55. Priority Area 8 sh


N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Priority Survey Area 8: Fourth East Jetty Range
Project:
Cape Fear River Comprehensive Survey
Legend:
□ Priority Area
⊗ Targets investigated
● Targets designated as UAU sites
Scale:
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Date: May 1994
Cape Fear River
Priority Area 3
Priority Area 8
Eagles Island
Brunswick River
No significant targets were located in Area 8

Figure 55. Priority Area 8 showing Target Locations.

PRIORITY AREA 9: Fort Caswell

Priority Area 9 was the area off Fort Caswell/Oak Island on the west side of the Southport Channel. That area was selected for survey based on activity associated with Fort Caswell and the Western Bar channel entrance to the Cape Fear River. The area extended from the west channel toe to the high-water mark on the north side of Oak Island. The maximum width of the survey area was 750 feet, and the length was 5,000 feet. A total of three targets was investigated in Priority Area 9 **(Figure 56)**.

Target 9-A

State Plane Coordinates
2297140 E, 56925 N

Target 9-A produced a bipolar magnetic signature of 120 gammas over an 18-pulse interval **(Figure 56)**. Corresponding sonagram records indicated a single linear object, with a large scour on the channel side of the target. Diver investigation located a large rock ledge that dropped into the channel, but no material was located that generated the magnetic signature. The bottom was rock and sand, and visibility was 1 foot. No further investigation was conducted at Target 9-A.

Target 9-B

State Plane Coordinates
2297270 E, 56570 N

Target 9-B had a bipolar magnetic signature of 80 gammas over a 21-pulse duration **(Figure 56)**. Corresponding sonagram records indicated a scatter of debris on the bottom surface exposed approximately 3 feet off the bottom surface. Diver investigation of the area located a rock bottom, with several pieces of coquina exposed 3 feet off the bottom surface. A 1-inch-diameter cable was located in the target area. The bottom was rock and sand, and visibility was approximately 1 foot. No further investigation of Target 9-B was required.

Target 9-C

State Plane Coordinates
2299250 E, 54345 N

Target 9-C was located approximately 300 yards downriver from the Fort Caswell Pier and had a bipolar magnetic signature of 380 gammas over a 22-pulse duration **(Figure 56)**. Corresponding sonagram records indicated a large scatter nearly 100 feet in length and exposed up to 10 feet off the bottom surface. Diver investigation located what appeared to be the remains of a nineteenth-century steamboat (see Site Descriptions 0084CFR). The bottom sediment was sand. Visibility was between 6 inches and 3 feet. Further investigation was required at Target 9-C.

PRIORITY AREA 10: Horseshoe Shoals
Priority Area 10 included portions of both Horseshoe Shoals and Snows Marsh Channels **(Figure 57)**. The area extended from the east channel toe to the "The Rocks." That area was selected for survey in order to confirm the location and assess the condition of the Confederate ironclad *Raleigh* and also on the basis of extensive maritime activities associated with the pre-1880 use of New Inlet. The maximum width of the survey area was 1,000 feet, and the length was 7,500 feet. Four targets were investigated in Priority Area 10.

Target 10-A	**State Plane Coordinates** **2313683 E, 72657 N**

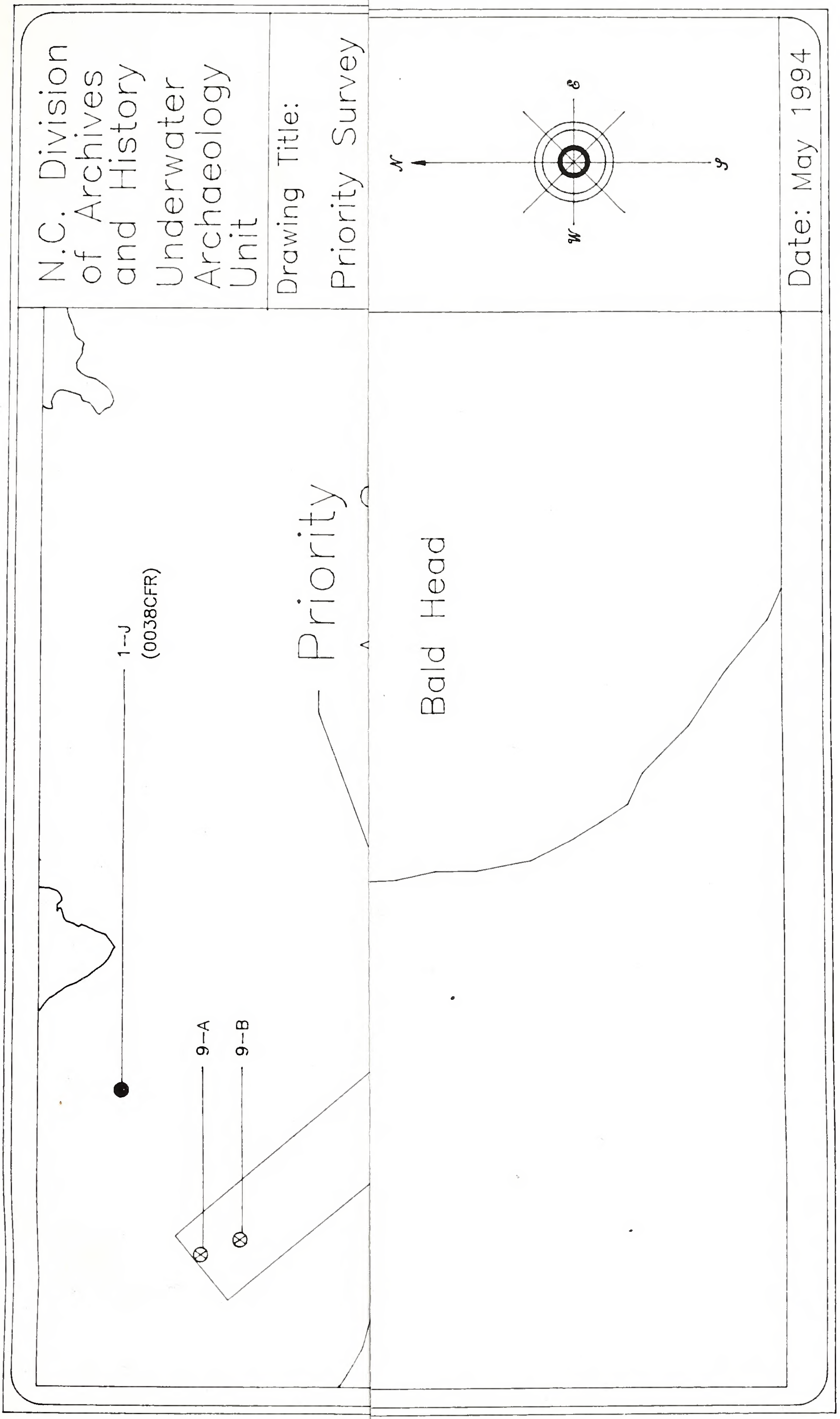
Target 10-A had a bipolar magnetic signature of 110 gammas over a 10-pulse duration **(Figure 57)**. No corresponding sonagram records were associated with the magnetic signature. Diver reconnaissance of the area located six 10-inch-diameter wood pilings exposed vertically, 2 feet off the bottom surface. A 1-inch-diameter spike was fastened in the end of one piling. Near the piling divers located a cable that measured 1½ inches in diameter and 10 feet in length. The pilings were probably associated with the Snows Marsh training dike, built in 1895. The bottom sediment was sand, and visibility ranged from 2-3 feet. No further investigation was conducted for Target 10-A.

Target 10-B	**State Plane Coordinates** **2314105 E, 73060 N**

Target 10-B had a bipolar magnetic signature of 670 gammas over an 11-pulse duration **(Figure 57)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located a row of 10- to 12-inch-diameter pilings that extended at least 200 feet parallel to the channel. The pilings were exposed up to 3 feet off the bottom surface. The row of pilings was probably associated with the Snows Marsh training dike built in 1895. The bottom sediment was sand, and visibility ranged from 2 to 3 feet. No further investigation was conducted for Target 10-B.

Target 10-C	**State Plane Coordinates** **2317780 E, 77050 N**

Target 10-C had a bipolar magnetic signature of 1,200 gammas over a 23-pulse duration **(Figure 57)**. Sonar records were not available at the time of the survey. Diver reconnaissance of the area located the remains of the Civil War ironclad *Raleigh* (see Site Descriptions 0003NEI). The bottom sediment was sand with a light layer of silt. Further investigation was required at Target 10-C.


N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Priority Survey
Date: May 1994
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Bald Head
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(0038CFR)
9-A
9-B

Figure 56. Priority Area 9 sh

PRIORITY AREA 10: Horseshoe Shoals
Priority Area 10 included portions of both Horseshoe Shoals and Snows Marsh Channels **(Figure 57)**. The area extended from the east channel toe to the "The Rocks." That area was selected for survey in order to confirm the location and assess the condition of the Confederate ironclad *Raleigh* and also on the basis of extensive maritime activities associated with the pre-1880 use of New Inlet. The maximum width of the survey area was 1,000 feet, and the length was 7,500 feet. Four targets were investigated in Priority Area 10.

Target 10-A	**State Plane Coordinates** **2313683 E, 72657 N**

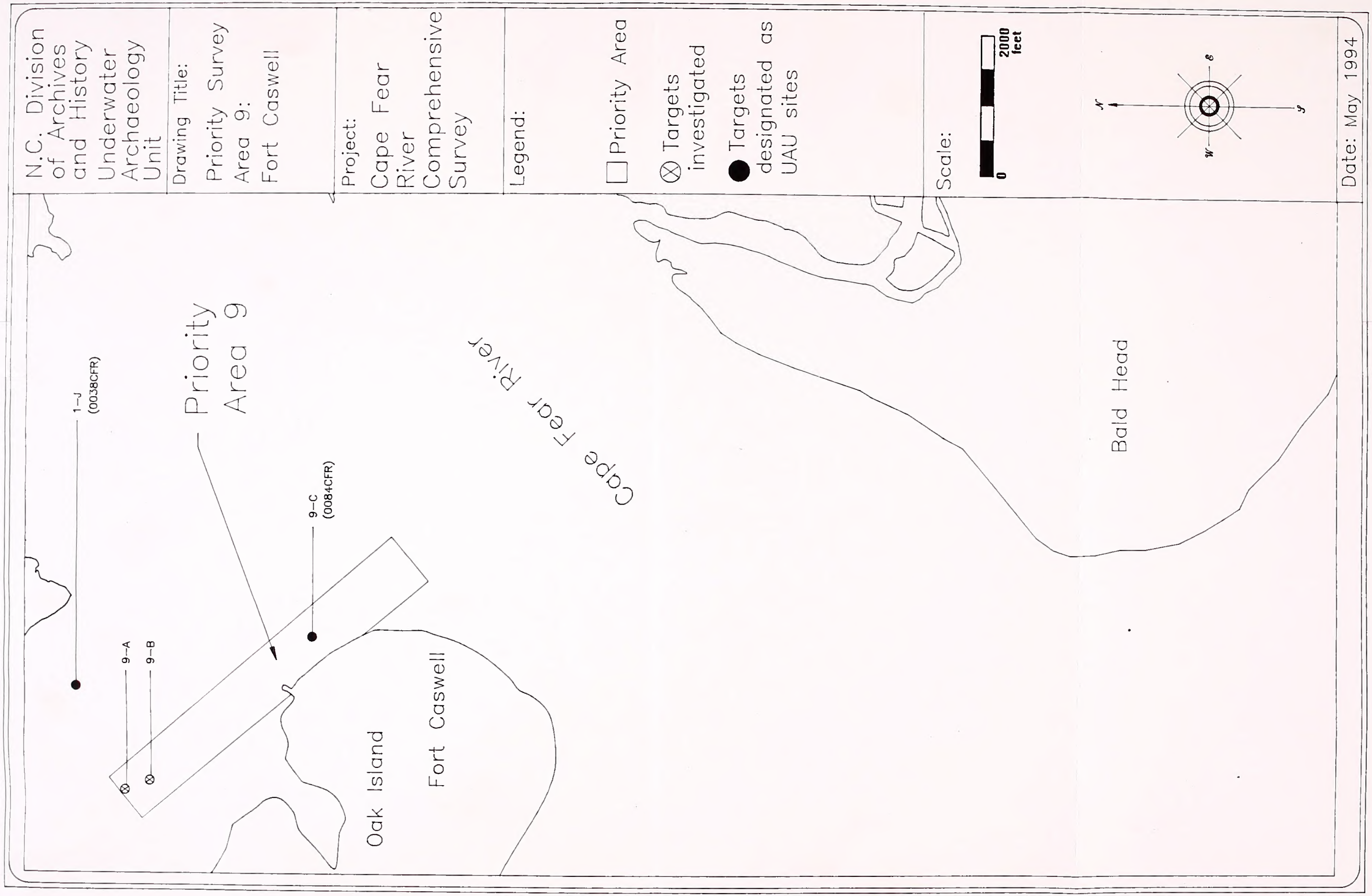
Target 10-A had a bipolar magnetic signature of 110 gammas over a 10-pulse duration **(Figure 57)**. No corresponding sonagram records were associated with the magnetic signature. Diver reconnaissance of the area located six 10-inch-diameter wood pilings exposed vertically, 2 feet off the bottom surface. A 1-inch-diameter spike was fastened in the end of one piling. Near the piling divers located a cable that measured 1½ inches in diameter and 10 feet in length. The pilings were probably associated with the Snows Marsh training dike, built in 1895. The bottom sediment was sand, and visibility ranged from 2-3 feet. No further investigation was conducted for Target 10-A.

Target 10-B	**State Plane Coordinates** **2314105 E, 73060 N**

Target 10-B had a bipolar magnetic signature of 670 gammas over an 11-pulse duration **(Figure 57)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located a row of 10- to 12-inch-diameter pilings that extended at least 200 feet parallel to the channel. The pilings were exposed up to 3 feet off the bottom surface. The row of pilings was probably associated with the Snows Marsh training dike built in 1895. The bottom sediment was sand, and visibility ranged from 2 to 3 feet. No further investigation was conducted for Target 10-B.

Target 10-C	**State Plane Coordinates** **2317780 E, 77050 N**

Target 10-C had a bipolar magnetic signature of 1,200 gammas over a 23-pulse duration **(Figure 57)**. Sonar records were not available at the time of the survey. Diver reconnaissance of the area located the remains of the Civil War ironclad *Raleigh* (see Site Descriptions 0003NEI). The bottom sediment was sand with a light layer of silt. Further investigation was required at Target 10-C.


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Priority Survey Area 9: Fort Caswell
Project:
Cape Fear River Comprehensive Survey
Legend:
□ Priority Area
⊗ Targets investigated
● Targets designated as UAU sites
Scale:
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2000 feet
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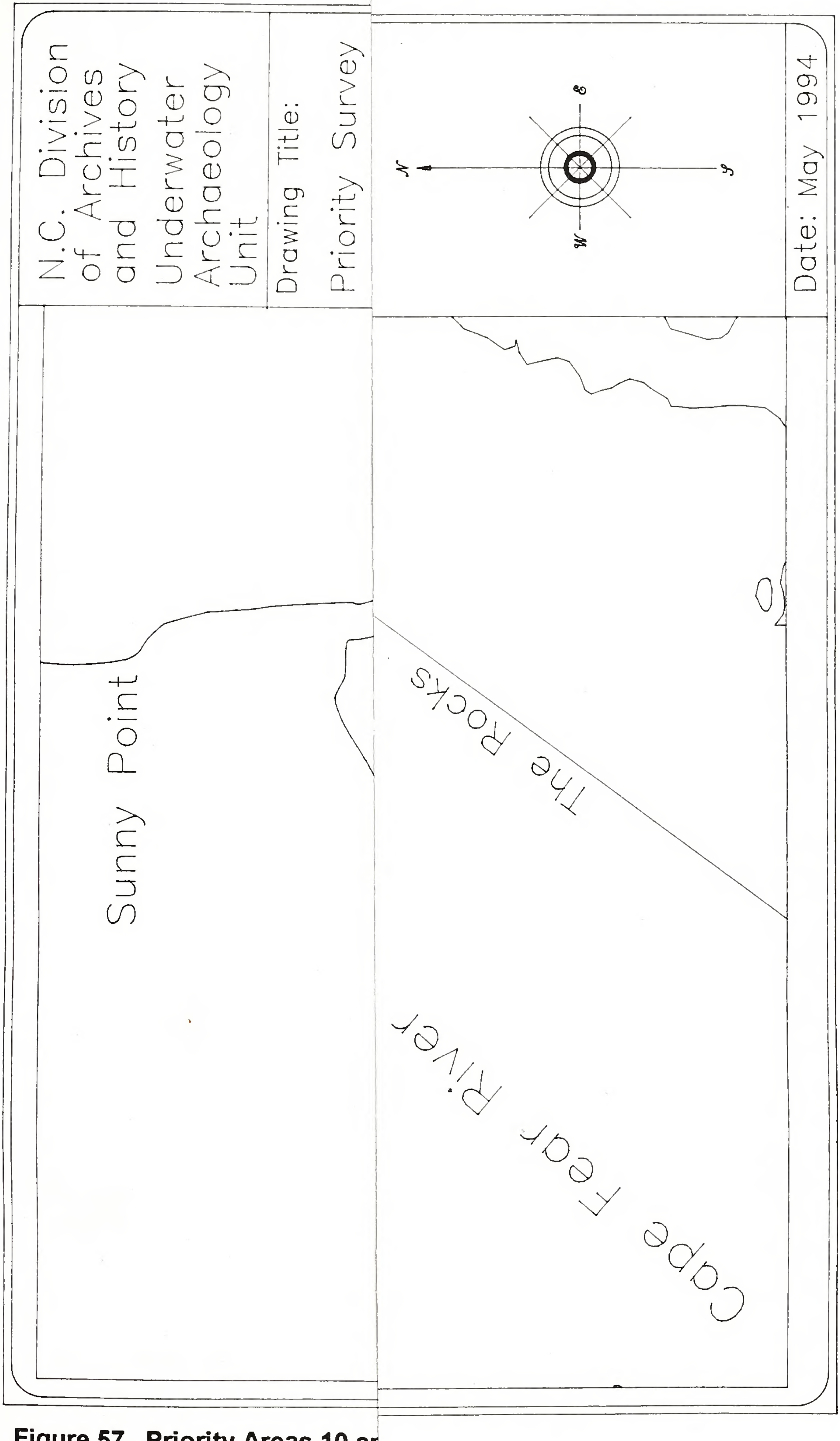
S
W
Date: May 1994
Priority Area 9
Cape Fear River
Bald Head
Oak Island
Fort Caswell
1-J (0038CFR)
9-C (0084CFR)
9-A
9-B

Figure 56. Priority Area 9 showing Target Locations.


N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Priority Survey
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Date: May 1994
Sunny Point
The Rocks
Cape Fear River

Figure 57. Priority Areas 10 ar

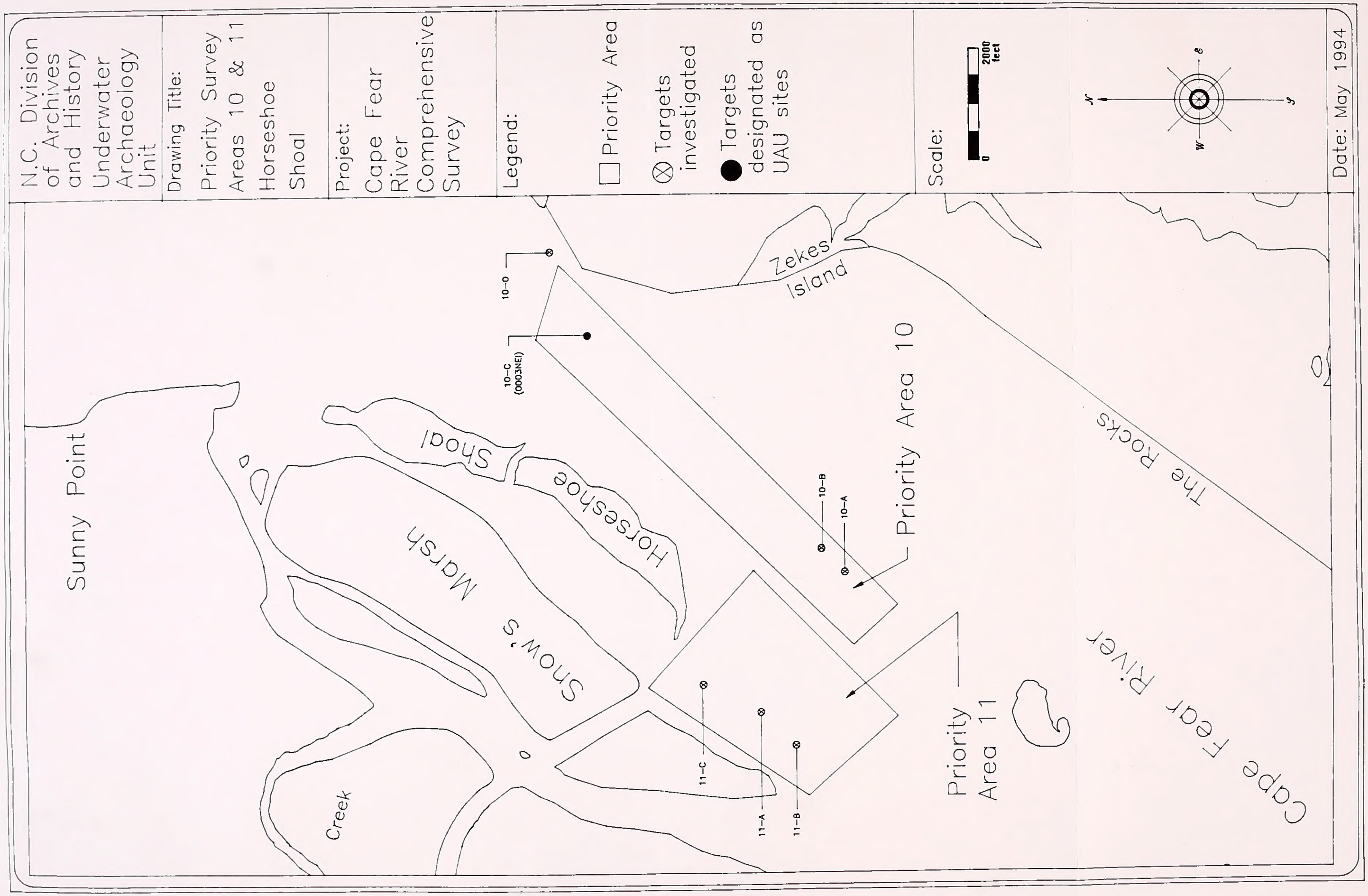

N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Priority Survey Areas 10 & 11 Horseshoe Shoal
Project:
Cape Fear River Comprehensive Survey
Legend:
Priority Area
Targets investigated
Targets designated as UAU sites
Scale:
0
2000 feet
N
S
E
W
Date: May 1994
Sunny Point
Zekes Island
The Rocks
Horseshoe Shoal
Snow's Marsh
Creek
Cape Fear River
Priority Area 10
Priority Area 11
10-D
10-C (0003NEI)
10-B
10-A
11-C
11-A
11-B

Figure 57. Priority Areas 10 and 11 showing Target Locations.

Target 10-D	**State Plane Coordinates** **2319224 E, 77705 N**

Target 10-D was located at the north end of "The Rocks" and had a negative monopolar magnetic signature of 45 gammas over an 8-pulse duration **(Figure 57)**. No corresponding sonagram records were associated with the magnetic signature. Diver investigation of the area did not reveal any material associated with the magnetic anomaly. Probing of a 50-foot by 50-foot area to a depth of 6 feet resulted in negative contact with any submerged cultural resources. The bottom sediment was sand and mud, and visibility was approximately 6 inches. No further investigation of Target 10-D was conducted.

PRIORITY AREA 11: Marker "19"

Priority Area 11 included the area north of Price's Creek near channel marker 19. The area extended from the west channel toe to 2,500 feet toward the west bank. The maximum width of the survey area was 2,500 feet, and the length was 3,500 feet. Local fisherman and residents of Southport claim the remains of the pilot boat *Francis Elizabeth* are located in the vicinity of marker 19. Project divers investigated a total of three targets **(Figure 57)**.

Target 11-A	**State Plane Coordinates** **2311296 E, 74118 N**

Target 11-A had a bipolar magnetic signature of 740 gammas over a 10-pulse duration **(Figure 57)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver investigation of the area located a 1-inch-diameter cable approximately 20 feet in length lying on the sand bottom. Visibility was approximately 1 foot. No further investigation was required at Target 11-A.

Target 11-B	**State Plane Coordinates** **2310718 E, 73520 N**

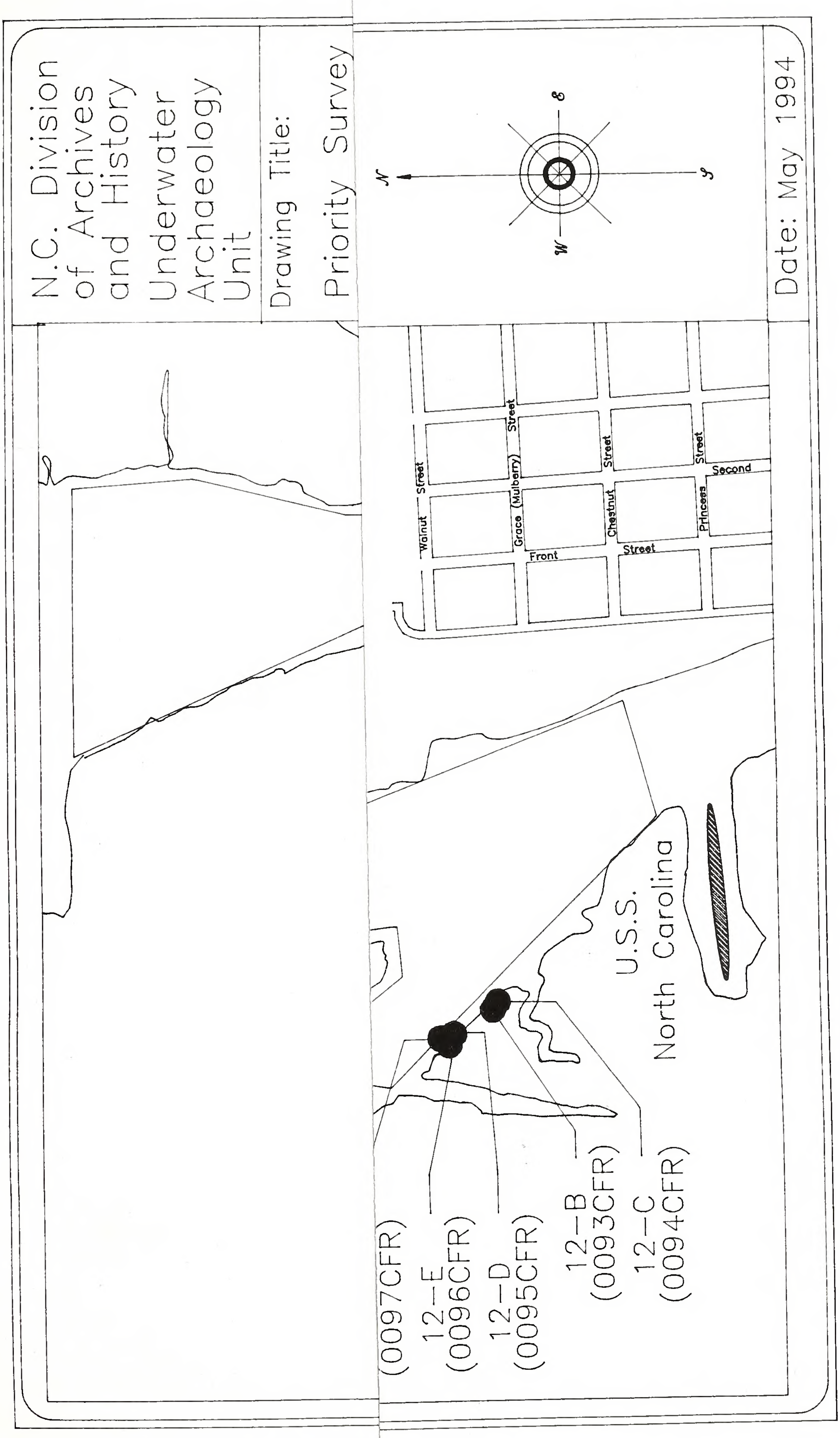
Target 11-B had a bipolar magnetic signature of 700 gammas over a 16-pulse duration **(Figure 57)**. No corresponding sonagram records were identified in association with the magnetic signature. Diver reconnaissance of the area did not locate the source of material generating the magnetic anomaly. The orientation of the magnetic signature suggested that the target was probably a pipe or cable buried beneath the sand surface. Visibility was approximately 1 foot. No further investigation of Target 11-B was conducted.

Target 11-C **State Plane Coordinates**
2311780 E, 75095 N

Target 11-C had a positive monopolar magnetic signature of 560 gammas over a 14-pulse duration **(Figure 57)**. No corresponding sonar records were associated with the magnetic signature. Diver investigation of the area located a wooden structure approximately 3 feet beneath the bottom surface. The target could not be identified at the time of the initial survey. The bottom sediment was sand, and visibility was approximately 1 foot. No further investigation was conducted at Target 11-C.

PRIORITY AREA 12: Downtown District

Priority Area 12 included the area between Smith Creek and the USS *North Carolina* Battleship Memorial. The survey area was limited to the land exposed during low tide along both shorelines of the Northeast Cape Fear River and along the west bank of the Cape Fear River. During the low-water survey the UAU located and examined within Priority Area 12 sixteen sites. See Site Descriptions section of this report for a discussion of those sites **(Figure 58)**.


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Priority Survey
Date: May 1994
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E
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W
Walnut Street
Grace (Mulberry) Street
Chestnut Street
Princess Street
Second
Front Street
U.S.S. North Carolina
(0097CFR)
12—E (0096CFR)
12—D (0095CFR)
12—B (0093CFR)
12—C (0094CFR)

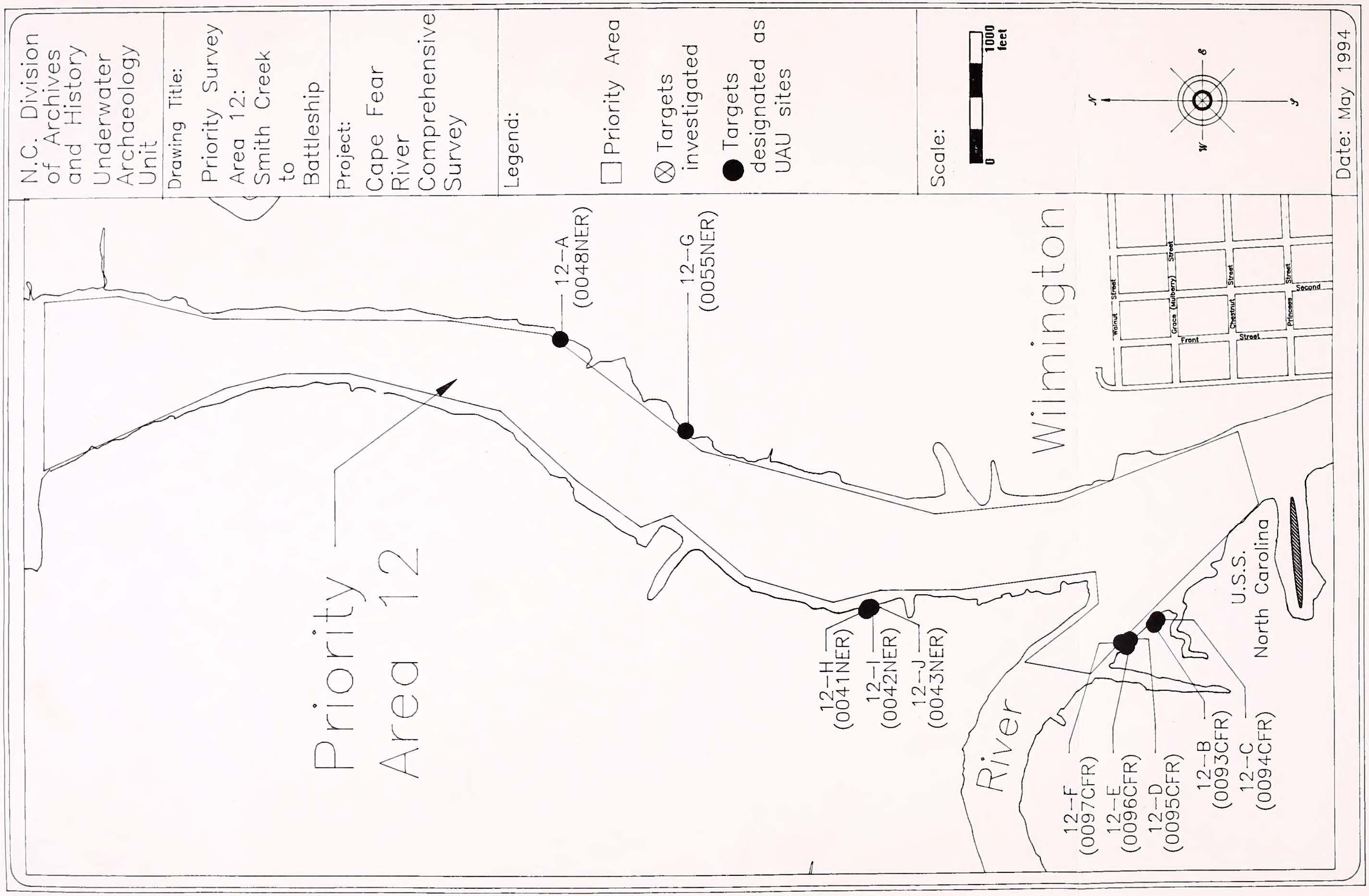
Figure 58. Priority Area 12 s

Target 11-C **State Plane Coordinates**
2311780 E, 75095 N

Target 11-C had a positive monopolar magnetic signature of 560 gammas over a 14-pulse duration **(Figure 57)**. No corresponding sonar records were associated with the magnetic signature. Diver investigation of the area located a wooden structure approximately 3 feet beneath the bottom surface. The target could not be identified at the time of the initial survey. The bottom sediment was sand, and visibility was approximately 1 foot. No further investigation was conducted at Target 11-C.

PRIORITY AREA 12: Downtown District

Priority Area 12 included the area between Smith Creek and the USS *North Carolina* Battleship Memorial. The survey area was limited to the land exposed during low tide along both shorelines of the Northeast Cape Fear River and along the west bank of the Cape Fear River. During the low-water survey the UAU located and examined within Priority Area 12 sixteen sites. See Site Descriptions section of this report for a discussion of those sites **(Figure 58)**.


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Priority Survey Area 12: Smith Creek to Battleship
Project:
Cape Fear River Comprehensive Survey
Legend:
☐ Priority Area
⊗ Targets investigated
● Targets designated as UAU sites
Scale:
0
1000 feet
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E
S
W
Date: May 1994
12–A (0048NER)
12–G (0055NER)
12–H (0041NER)
12–I (0042NER)
12–J (0043NER)
12–F (0097CFR)
12–E (0096CFR)
12–D (0095CFR)
12–B (0093CFR)
12–C (0094CFR)
Priority Area 12
Wilmington
River
U.S.S. North Carolina
Walnut Street
Grace (Mulberry) Street
Chestnut Street
Princess Street
Front Street
Second

Figure 58. Priority Area 12 showing Target Locations.

Site Descriptions

The following are descriptions of all underwater archaeological sites located by the UAU during the project. The site descriptions have been organized by their target numbers within each priority areas. A list of all documented sites in the Cape Fear and Northeast Cape Fear Rivers can be found in **Tables 2-1 and 2-2**.

Site # 0052CFR	**State Plane Coordinates**
CSS *North Carolina*	**2299530 E, 60392 N**
Target 1-C	

Target 1-C, located near the west bank of Battery Island, had a bipolar magnetic signature of 1,000 gammas over an 18-pulse duration **(Figure 59)**. Corresponding sonagram records indicated a large scatter of material approximately 150 feet in length and exposed 4 feet off the bottom surface. From September 21 to 23 a diver investigation of the area located the remains of a wooden-hulled vessel. Examination of the exposed structure confirmed that the longitudinal axis of the hull lay parallel to the river channel and was mostly covered by sand. Neither the bow nor the stern could be positively identified. Because of the heavy marine growth on the remains, much of the exposed wreckage was not recognizable. The bottom sediment consisted of sand and shell, and visibility ranged from 1 to 4 feet. Currents at the wreck site were moderate during all tides. Maximum water depth was 15 feet.

The exposed remains of the vessel included what was possibly the keelson, frames at the downriver end and at midships, two iron boxes, an iron component at the upriver end, several iron plates on the inshore side, and what appeared to be part of the decking at midships **(Figure 60)**. To plot the various portions of the vessel accurately, two baselines were positioned over the wreck. The primary baseline, which began at the upriver end of the wreck, extended along the longitudinal axis of the site. A secondary baseline was placed in a zigzag pattern between the exposed features on both sides of the wreck. The secondary baseline was used to plot the position of exposed features. The vessel remains measured 165 feet in length, and the maximum extant width was 42 feet. The dimension of the frames near the downriver end was 9½ inches sided with no space between the frames. One-inch diameter iron drift pins with 1½-inch roved heads were used to fasten the ceiling to the frames. The frames at midships were so badly deteriorated that no accurate measurement could be obtained.

Slightly downriver of midships, two intact iron boxes and several fragments of collapsed iron containers were observed. The iron boxes, made of 1½-inch iron plate, had riveted seams and an inspection port on the top of the container. The container farthest upriver was 118 feet from the upriver end of the vessel and measured 13 feet 9 inches by 8 feet 1 inch; it was exposed 2 feet 6 inches above the bottom surface. The second container was 7 feet farther downriver from the first container and measured 10 feet 9 inches by 3 feet 2 inches; it was exposed 2 feet 6 inches off the bottom surface. The remaining container fragments were located in approximately the same area but concentrated more on the side of the vessel nearest Battery Island.

An iron component that may have been a supporting brace was located on the upriver end of the wreck. The asymmetrical Y-shaped component was positioned 16 feet from the end of the keelson and was exposed 1 foot off the bottom surface.

Target 1-C is believed to be the wreck of the Civil War ironclad *North Carolina*, which was abandoned adjacent to Battery Island in 1864 (see discussion in Shipwrecks and Derelicts Section - Vol. 1). In addition, an 1872 United States Coast Survey chart titled Hydrography of New Inlet Cape Fear River, North Carolina shows the wreck of the *North Carolina* in the same location as Target 1-C.

Six artifacts were recovered from the site of the *North Carolina*: a dark green bottle, a stoneware bottle, a light green bottle, a black glass bottle fragment, a flange, and a mounting bracket. The dark green bottle, artifact number 0052CFR1, was recovered on the east side next to the upriver iron box. The bottle was made in a three-piece mold with an applied lip and embossed "Buchanans Black & White Whiskey" on the shoulder. The bottle measured 3 1/8 inches across the base and 11½ inches in height.

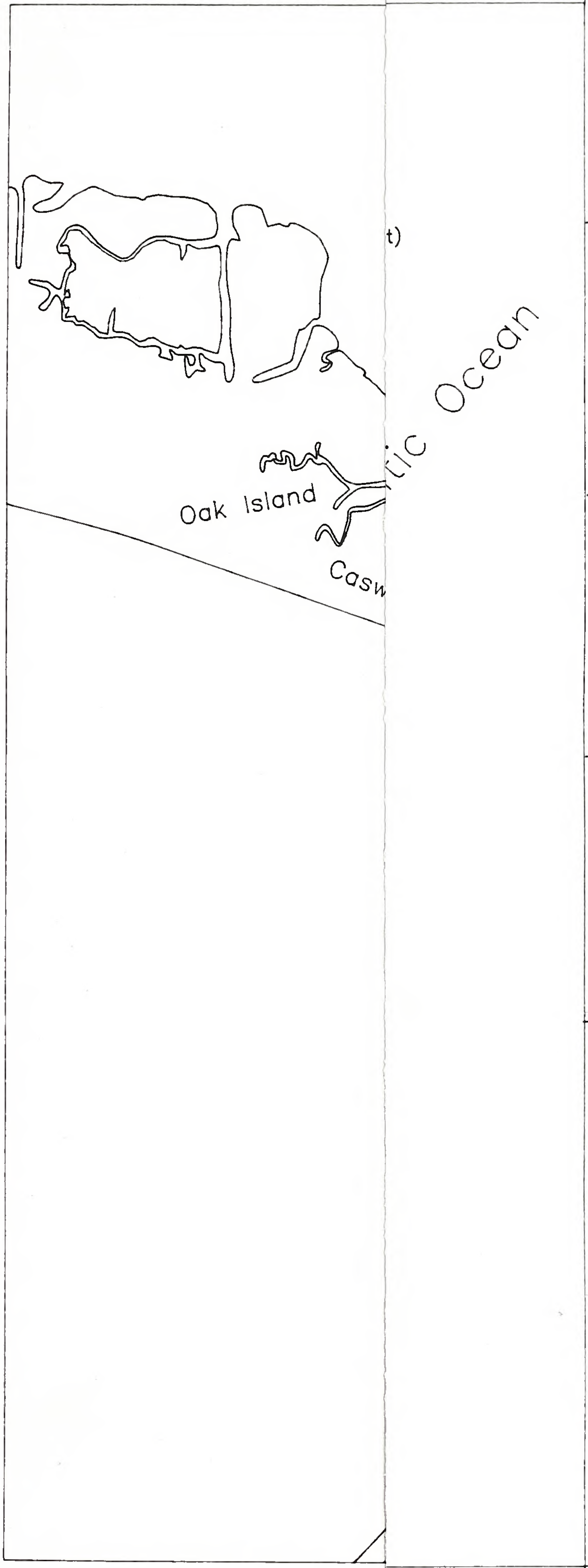
The stoneware bottle, artifact number 0052CFR2, was located at midships near the exposed frames on the channel side of the vessel. The bottle was cream-colored with a collar between the spout-type lip and the neck. Twenty-five percent of the bottle was broken on one side from the lip down. The bottle measured 3½ inches in diameter at the base and 8¾ inches in height.

The light green bottle, artifact number 0052CFR3, was located at the downriver end of the vessel, next to the last exposed frames. The bottle was free blown and had an applied lip. The slightly cracked base of the bottle had an improved pontil. The artifact measured 2¾ inches in diameter at the base and 11½ inches in height **(Figure 61)**.

A black glass bottle base fragment, artifact number 0052CFR4, was located next to the downriver iron box. The bottle was free blown with an improved pontil. The base measured 2¾ inches in diameter, and the bottle fragment had a height of 4 inches.

A brass flange, artifact number 0052CFR5, was located just upriver from the iron boxes. The artifact had four countersunk screw holes and was heavily pitting on the top face. The inside face was threaded ¾ inch down, and the remainder was smooth. The flange was ½-inch thick and measured 4 inches along the inside diameter. The flange had a diameter of 5 7/8 inches and was 2 5/8 inches in height.

The mounting bracket, artifact number 0052CFR6, was located next to the upriver end of the upriver iron box. The brass artifact had four ¾-inch holes near each corner; 4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N.C. Division
of Archives
and History
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Drawing Title:

Known
Shipwreck Sites:
Southport to
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Project:

Cape Fear
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⬬ Shipwreck
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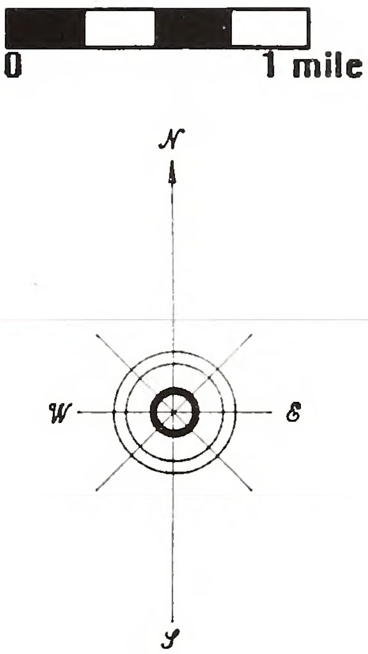
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Date: May 1994

Figure 59. Known Shipwreck

inches by 3 feet 2 inches; it was exposed 2 feet 6 inches off the bottom surface. The remaining container fragments were located in approximately the same area but concentrated more on the side of the vessel nearest Battery Island.

An iron component that may have been a supporting brace was located on the upriver end of the wreck. The asymmetrical Y-shaped component was positioned 16 feet from the end of the keelson and was exposed 1 foot off the bottom surface.

Target 1-C is believed to be the wreck of the Civil War ironclad *North Carolina*, which was abandoned adjacent to Battery Island in 1864 (see discussion in Shipwrecks and Derelicts Section - Vol. 1). In addition, an 1872 United States Coast Survey chart titled Hydrography of New Inlet Cape Fear River, North Carolina shows the wreck of the *North Carolina* in the same location as Target 1-C.

Six artifacts were recovered from the site of the *North Carolina*: a dark green bottle, a stoneware bottle, a light green bottle, a black glass bottle fragment, a flange, and a mounting bracket. The dark green bottle, artifact number 0052CFR1, was recovered on the east side next to the upriver iron box. The bottle was made in a three-piece mold with an applied lip and embossed "Buchanans Black & White Whiskey" on the shoulder. The bottle measured 3 1/8 inches across the base and 11½ inches in height.

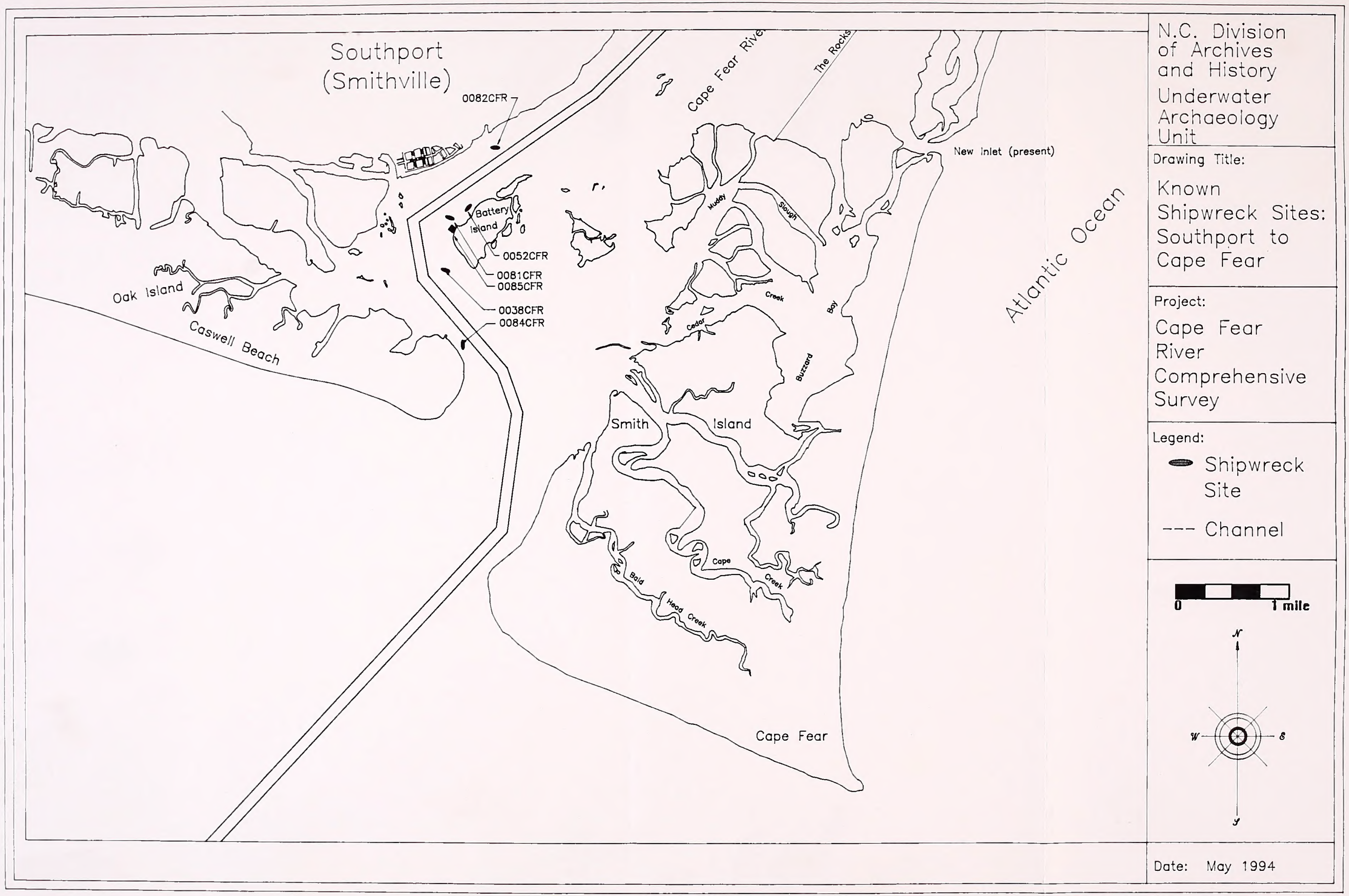
The stoneware bottle, artifact number 0052CFR2, was located at midships near the exposed frames on the channel side of the vessel. The bottle was cream-colored with a collar between the spout-type lip and the neck. Twenty-five percent of the bottle was broken on one side from the lip down. The bottle measured 3½ inches in diameter at the base and 8¾ inches in height.

The light green bottle, artifact number 0052CFR3, was located at the downriver end of the vessel, next to the last exposed frames. The bottle was free blown and had an applied lip. The slightly cracked base of the bottle had an improved pontil. The artifact measured 2¾ inches in diameter at the base and 11½ inches in height **(Figure 61)**.

A black glass bottle base fragment, artifact number 0052CFR4, was located next to the downriver iron box. The bottle was free blown with an improved pontil. The base measured 2¾ inches in diameter, and the bottle fragment had a height of 4 inches.

A brass flange, artifact number 0052CFR5, was located just upriver from the iron boxes. The artifact had four countersunk screw holes and was heavily pitting on the top face. The inside face was threaded ¾ inch down, and the remainder was smooth. The flange was ½-inch thick and measured 4 inches along the inside diameter. The flange had a diameter of 5 7/8 inches and was 2 5/8 inches in height.

The mounting bracket, artifact number 0052CFR6, was located next to the upriver end of the upriver iron box. The brass artifact had four ¾-inch holes near each corner; 4


Southport
(Smithville)
0082CFR
Cape Fear Rive
The Rocks
New Inlet (present)
Battery Island
0052CFR
0081CFR
0085CFR
0038CFR
0084CFR
Oak Island
Caswell Beach
Muddy
Slough
Creek
Cedar
Bay
Buzzard
Smith Island
Cape Creek
Bald Head Creek
Atlantic Ocean
Cape Fear
N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Known Shipwreck Sites: Southport to Cape Fear
Project:
Cape Fear River Comprehensive Survey
Legend:
Shipwreck Site
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1 mile
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W
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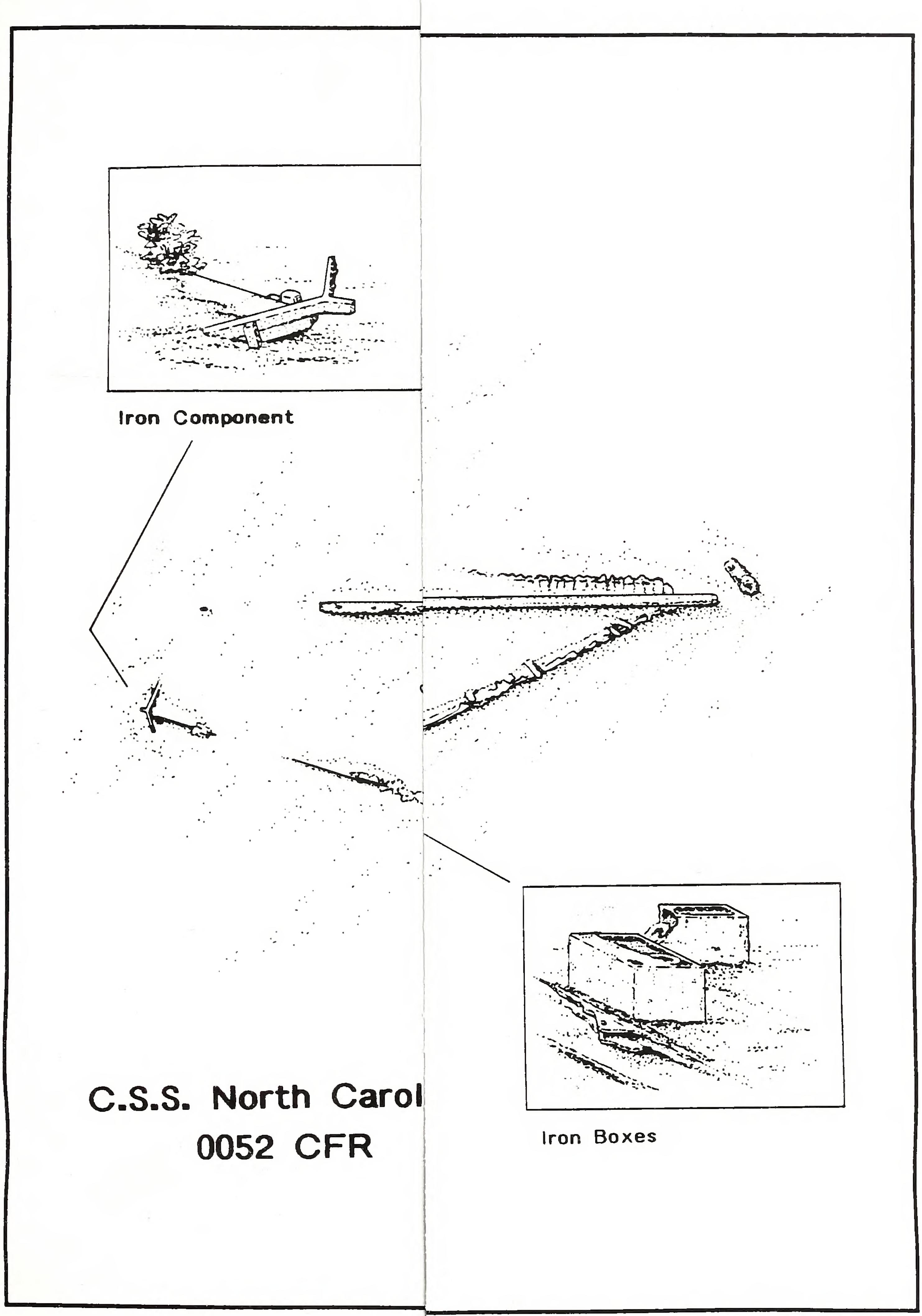
S
Date: May 1994

Figure 59. Known Shipwreck Sites: Southport to Cape Fear.


Iron Component
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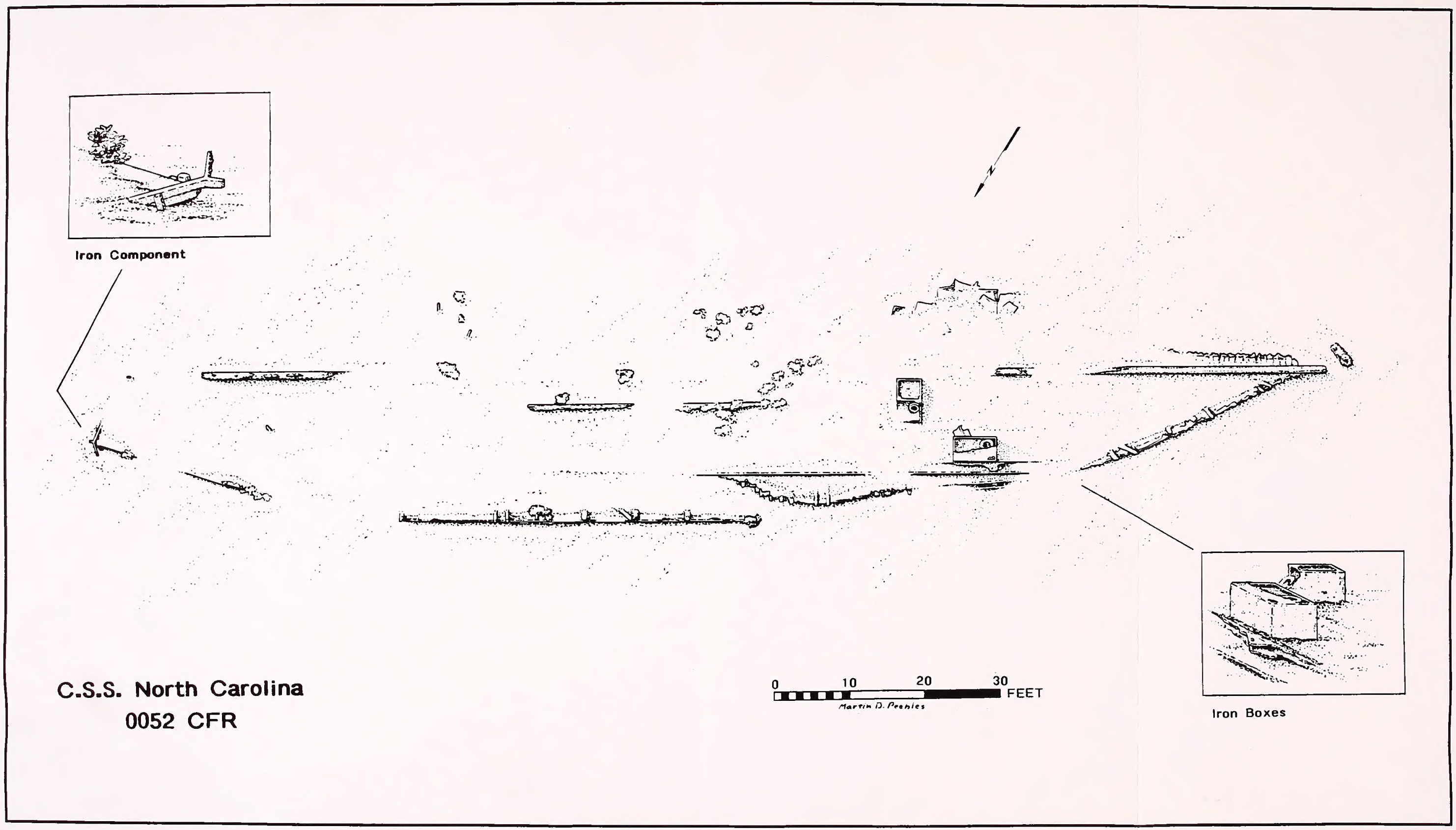
0052 CFR

Figure 60. CSS *North Carolina* Si


Iron Component
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Martin D. Peebles
Iron Boxes
C.S.S. North Carolina
0052 CFR

Figure 60. CSS *North Carolina* Site (0052CFR).

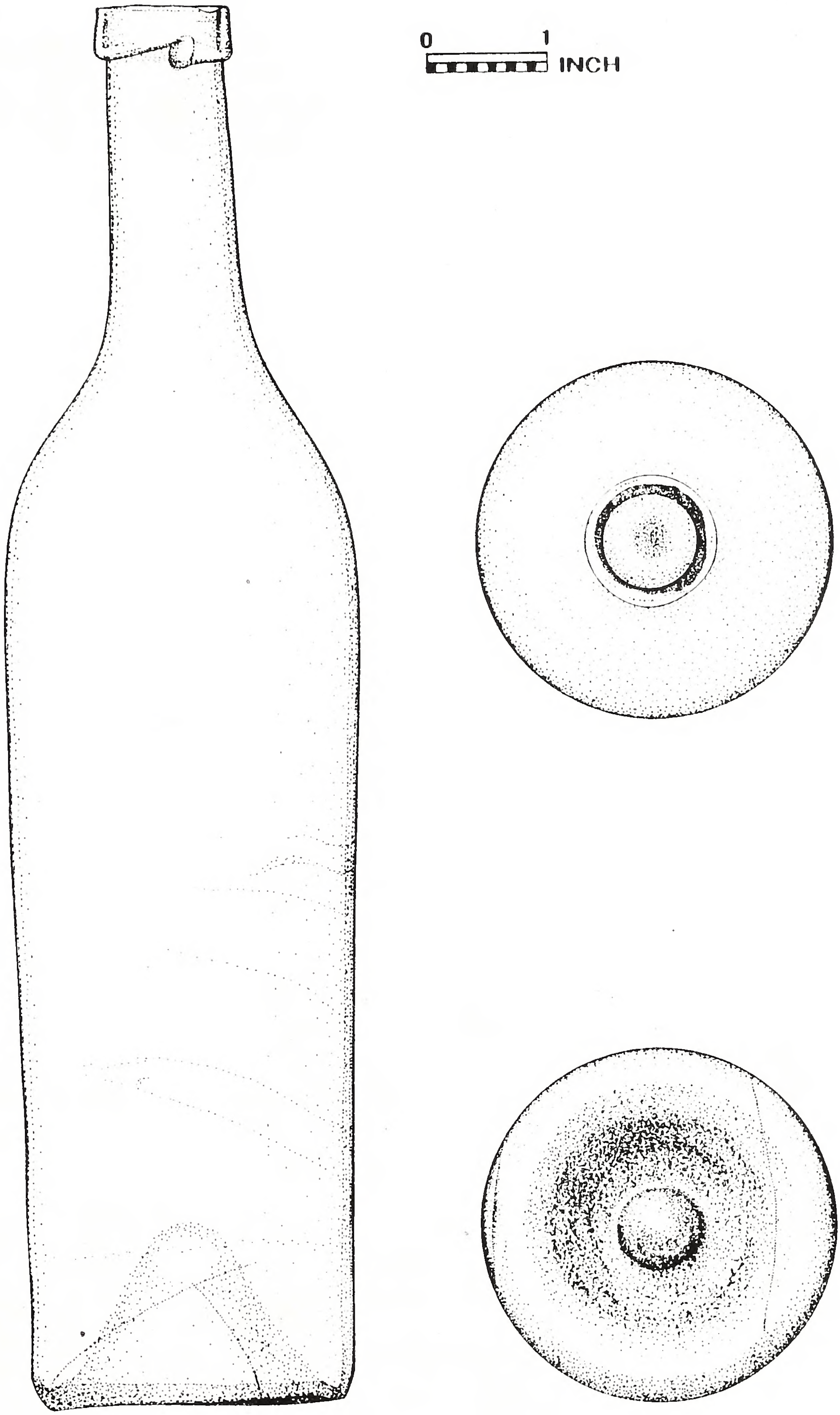


Figure 61. Glass Bottle from CSS *North Carolina*.

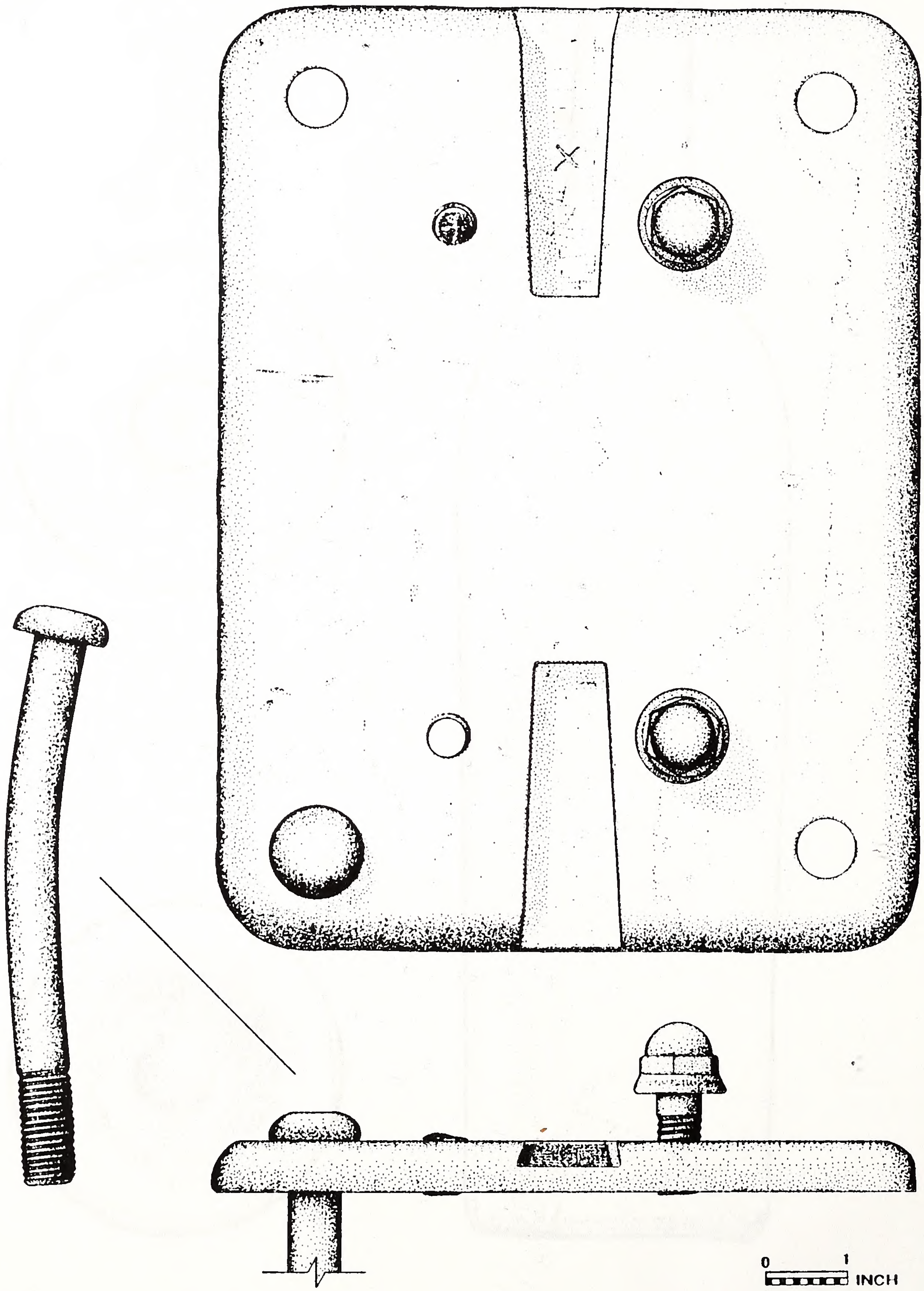


Figure 62. Brass Plate from CSS *North Carolina.*

threaded holes positioned 3 inches from each corner 9/16 inches in diameter; and two slots 3½ inches by 1, inch tapered in the center of both ends. An "X" had been cut in the bottom of the slot. The bottom contained two threaded cap nuts and one 5/8-inch by 7¼-inch rivet-head bolts, threaded 1½ inches from the end. The mounting bracket measured 11¾ inches in length, 8¾ inches in width, and ¾ inches in height **(Figure 62)**.

Site # 0081CFR
Belfast
Target 1-E

State Plane Coordinates
2298756 E, 59954 N

Target 1-E, located offshore of the southwest portion of Battery Island, had a bipolar magnetic signature of 240 gammas over a 20-pulse duration **(Figure 59)**. Corresponding sonagram images indicated a large scatter of debris exposed approximately 15 feet off the bottom surface that covered a 150 foot area in length. Diver reconnaissance of the area from September 17 to 23 located the remains of a wooden vessel. Strong currents and a short time span during slack tides hampered work on Target 1-E. It was not uncommon to have only twenty-five minutes of dive time between incoming and outgoing tides because of the strong currents, which could increase to more than 2 knots. The bottom sediment consisted of sand, shell, and a medium-soft clay. Visibility ranged from 6 inches to 3 feet. Maximum water depth was 43 feet.

Examination of the vessel remains confirmed that the longitudinal axis of the hull lay perpendicular to the river channel and was mostly covered by sand. Fishing nets covered a large portion of the wreckage, hampering identification of many of the exposed features. The rudder and steering quadrant were located at the channel end of the vessel. A baseline was placed from the rudder to the inshore end, with zero at the rudder. No evidence of the stem was located at the inshore end. The length of the wreck measured 181 feet, with double frame ends exposed over most of the starboard side. At 43 feet along the baseline, a small donkey engine was located. Throughout the wreckage cut pine logs, some with the bark still attached, were found. The logs were between 15 and 20 inches in diameter and were arranged longitudinally in the hull.

A 1939 USACOE map marked the location of the wreck of the *Belfast* at the same coordinates as those for Target 1-E. The *Belfast*, a schooner barge, was damaged in a storm on the Cape Fear Shoals and towed to Southport, where it sank (see account in Shipwrecks and Derelicts Section - Vol. 1). Historical documentation confirmed that the vessel carried lumber and pilings at the time of its loss, and the size of the *Belfast* matched the size of the vessel located by the UAU divers.

Two artifacts were recovered from the *Belfast*—a spike, and a brass ring. The spike, artifact number 0081CFR2, was located on the starboard side of the vessel, near the

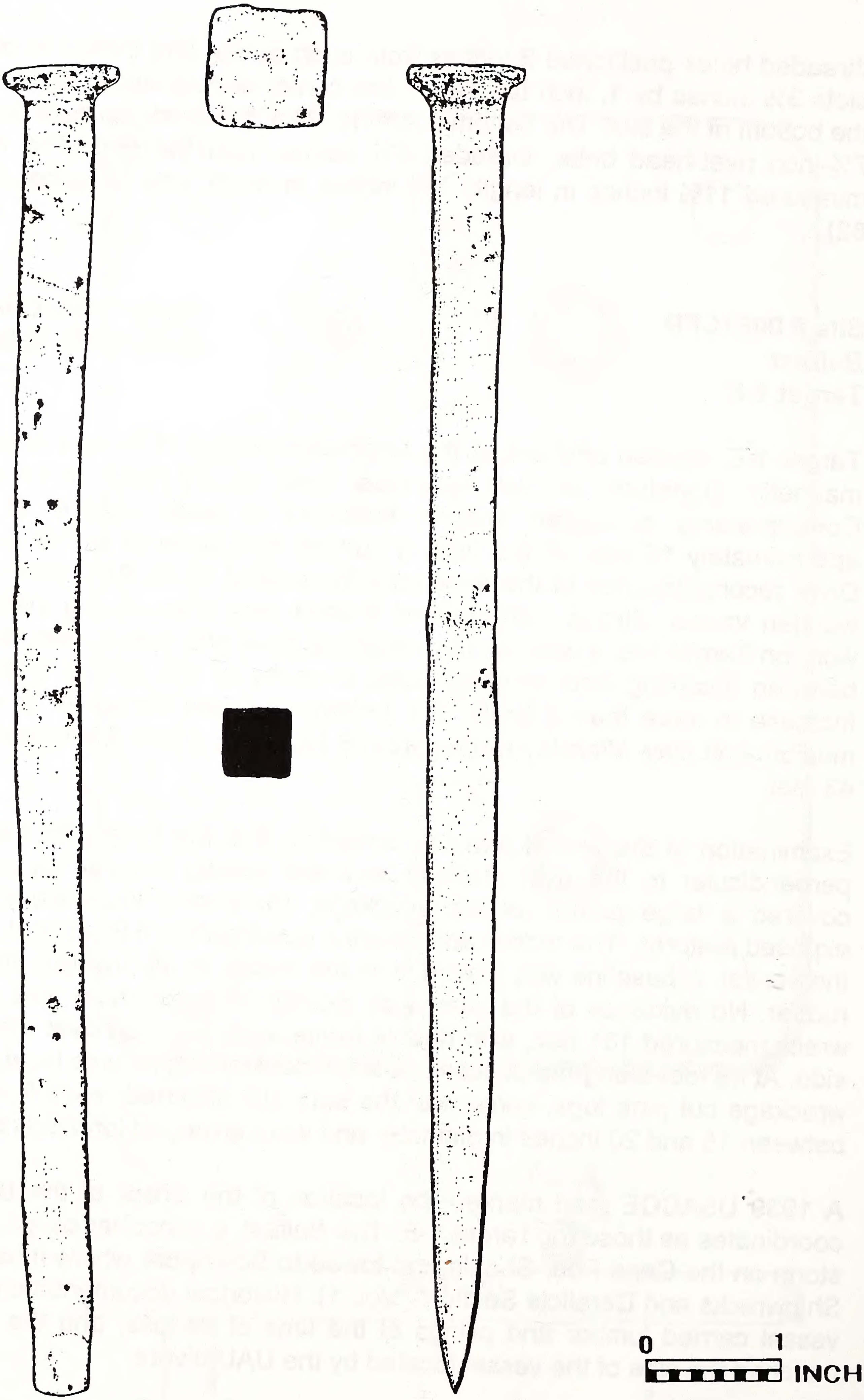


Figure 63. Spike from schooner-barge *Belfast* (0081CFR).

stern. The artifact was cast yellow metal and had a tapered body, a wedge point, and a square tapered head. The spike measured 9¾ inches in length with a ½ inch maximum width **(Figure 63)**. The brass ring, artifact number 0081CFR2, located at the stern, had an inside diameter of 3 inches and an outside diameter of 4 5/8 inches and was made from ¾ inch stock.

Site # 0085CFR	**State Plane Coordinates**
Battery Island Boiler	**2298892 E, 59539 N**
Target 1-G	

Target 1-G, located at the southern end of Battery Island, had a negative monopolar magnetic signature of 60 gammas over a 7-pulse duration **(Figure 59)**. No corresponding sonagram records were identified in association with the magnetic signature because of the shallow water depth. During periods of low tide the object was partially exposed. Diver reconnaissance of the area discovered the remains of an iron boiler exposed approximately 3 feet above the bottom surface. Although the depth of water at this site was very shallow, strong currents limited work time to about 30 minutes during both high and low tides. The bottom surface was a coarse sand with a light mixture of shell hash. Visibility was approximately 1 foot.

Once the UAU divers had located the target, a random search of the area was conducted to locate any further submerged cultural material. Divers probed to approximately 3 feet in depth 100 feet upriver and downriver of the boiler and determined that there was no associated wreck. Two pieces of concreted material were discovered 27 feet south of the boiler. The material could not be identified because of heavy concretion on the objects. The two objects covered an area approximately 6 feet square and were exposed 6 inches off the bottom surface.

The boiler, only partially visible, was positioned on its side at an angle and showed riveted seams. The exposed side from the end containing the firebox to the sand measured 3 feet 8 inches. The firebox opening was 1 foot 7 inches wide and 1 foot 4 inches in depth. A steam fitting was noted on the exposed side 1 foot 5 inches from the face of the boiler. The relatively small size of the boiler suggests that it was not used to propel a steam vessel but rather was used with a small donkey engine such as those employed on large sailing vessels to power a windlass.

Site # 0038CFR	**State Plane Coordinates**
NOAA # 4 Barge	**2298564 E, 57611 N**
Target 1-J	

Target 1-J was located at the southern end of Battery Island **(Figure 59)**. It had a positive monopolar magnetic signature of 120 gammas over a 14-pulse duration.

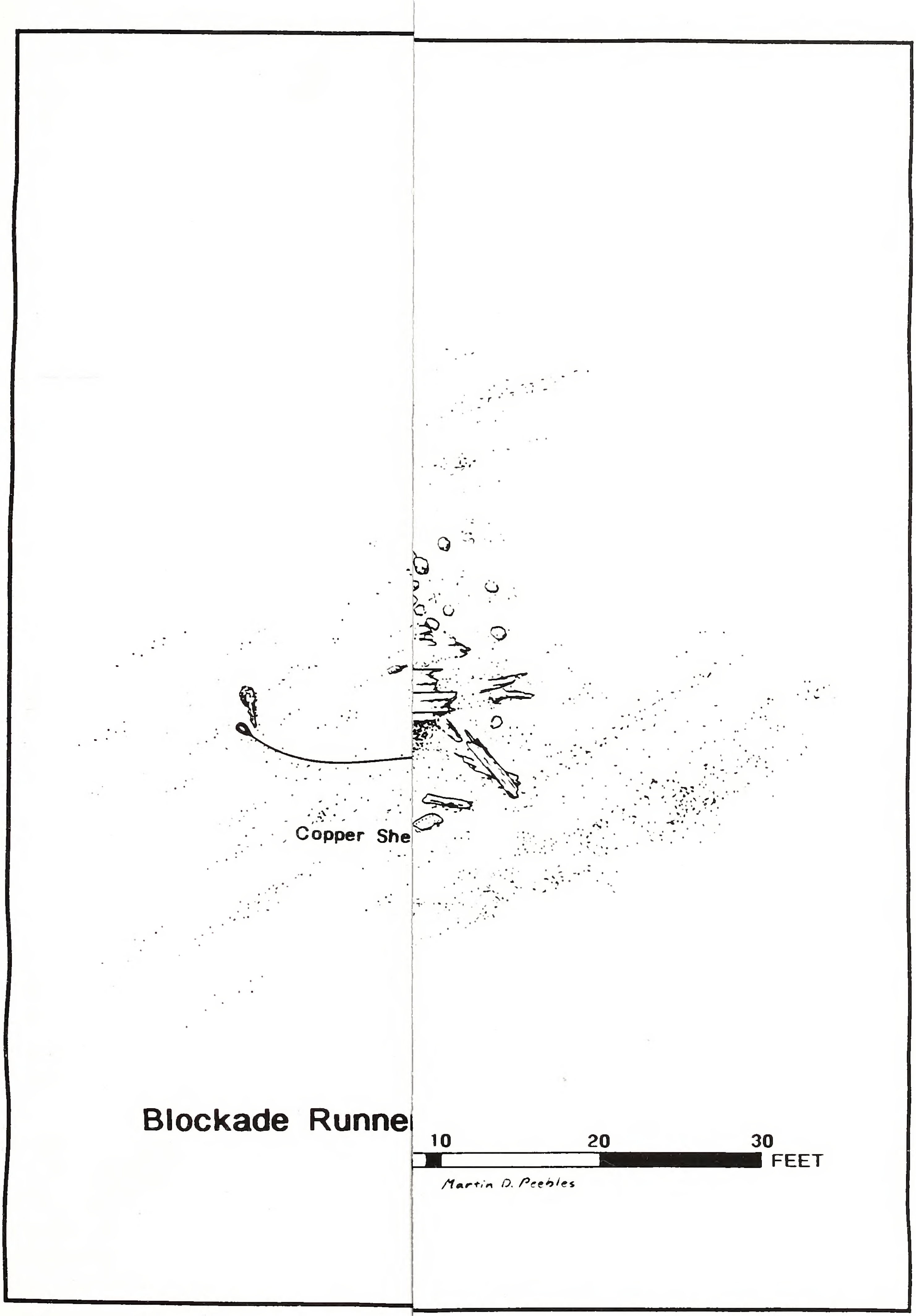
Corresponding sonagram records indicated a large rectangular object 100 feet in length exposed approximately 6 feet off the bottom surface. The location of the target corresponded with a wreck shown on NOAA chart 11537.

Diver investigation identified the target as the wreck of a wooden barge 110 feet in length and 30 feet in beam. Many of the exposed features were covered with fishing net, and those portions not covered in net were heavily encrusted with marine growth. The barge had raked ends, both exposed because of the strong current scouring the bottom surface. One-inch iron pins and spikes were noted throughout the structure. The frames were 4 inches by 4 inches on 4-foot centers and were positioned in a single-frame set. A metal cleat was located on the upriver end of the vessel. The use of iron drifts to fasten the sides and the steep rake of the ends suggest that the barge was of late nineteenth-century to early twentieth-century origin. The area around the barge was sand and rock, with 15-foot-deep scours on each end of the vessel. Maximum water depth was 20 feet, and visibility was approximately 4 feet.

Site # 0082CFR	**State Plane Coordinates**
Kate	**2300723 E, 63027 N**
Target 2-D	

Target 2-D, located directly off the Southport/Bald Head ferry dock, had a positive monopolar magnetic signature of 440 gammas over an 11-pulse duration **(Figure 59)**. Corresponding sonagram records indicated a large scatter of debris over an area 100 feet in length and was exposed nearly 15 feet above the bottom surface. A reconnaissance dive made on Target 2-D located the remains of a steam vessel **(Figure 64)**. The bottom surface on the channel side of the wreckage was hard clay, but sand and shell hash covered most of the area. Visibility averaged 2 feet on the higher portions of the wreck and 1 foot on the bottom. Maximum water depth was 35 feet.

From September 30 to October 5 the UAU dive team examined the remains of a nineteenth-century steamboat. The wreckage was a mass of twisted metal and pipes surrounded by a scatter of coal. The upriver end of the vessel pointed slightly northeast, toward the channel. A baseline was positioned from the downriver end, being the zero point, to the upriver end. The total length of the exposed wreckage was 96 feet, and the beam measured 19 feet at 56 feet on the baseline. At the downriver end the only exposed feature was copper sheathing protruding 2 inches off the bottom surface. Ten feet down the baseline were two floor timbers, and at 30 feet the remains of a boiler were encountered. The top half of the boiler had been torn off, as if a salvage attempt had been made on the wreckage. Adjacent to the boiler was a piece of a paddlewheel hub lying next to the copper sheathing. The copper sheathing was observed from the zero mark to 75 feet, with the midships area having the most exposed sheathing. At the upriver end of the wreckage only a few exterior strakes were located among a pile of coal.


Copper She
Blockade Runne
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Martin D. Peebles

Figure 64. Blockade Runner *Ka*

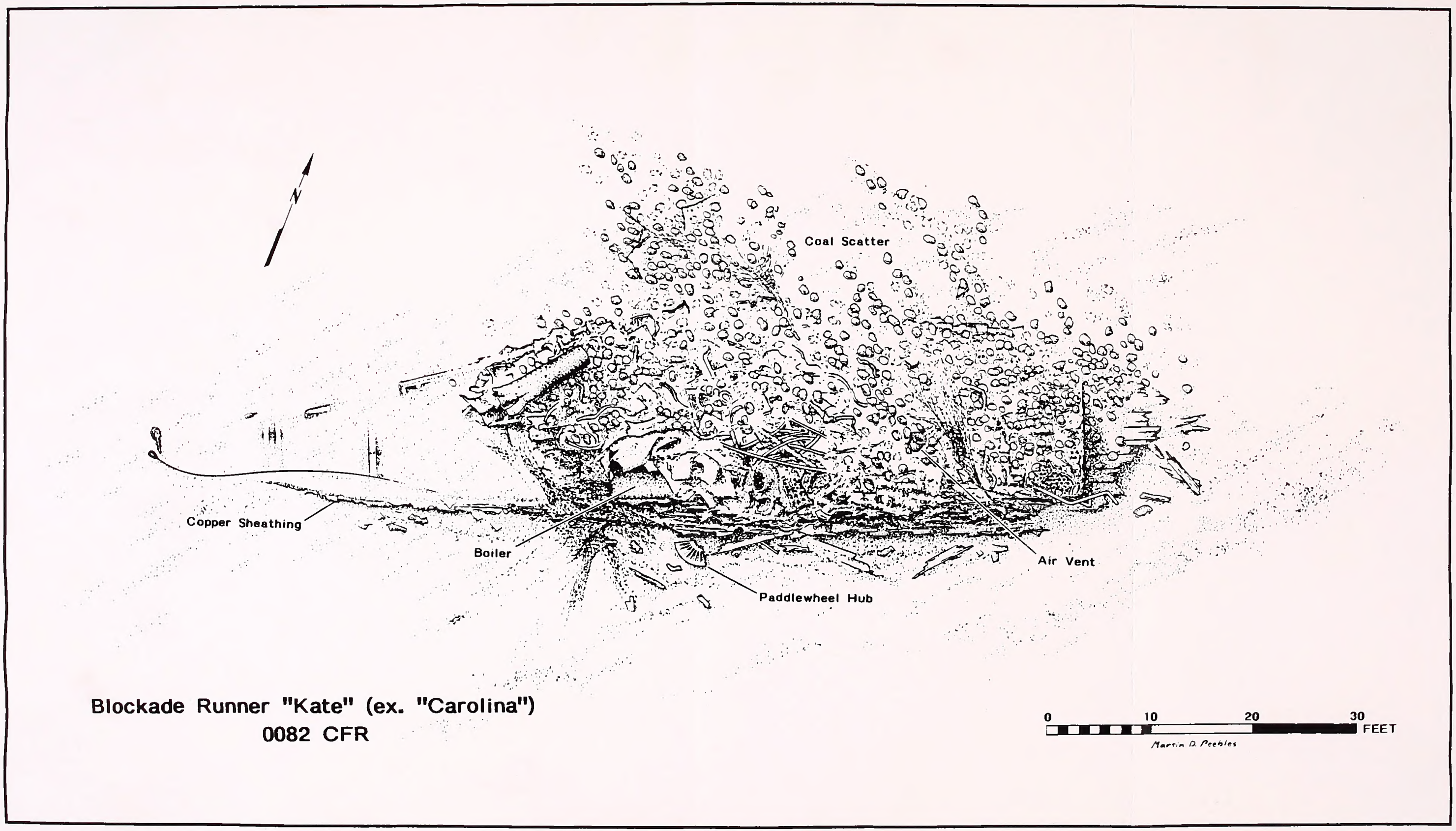
Corresponding sonagram records indicated a large rectangular object 100 feet in length exposed approximately 6 feet off the bottom surface. The location of the target corresponded with a wreck shown on NOAA chart 11537.

Diver investigation identified the target as the wreck of a wooden barge 110 feet in length and 30 feet in beam. Many of the exposed features were covered with fishing net, and those portions not covered in net were heavily encrusted with marine growth. The barge had raked ends, both exposed because of the strong current scouring the bottom surface. One-inch iron pins and spikes were noted throughout the structure. The frames were 4 inches by 4 inches on 4-foot centers and were positioned in a single-frame set. A metal cleat was located on the upriver end of the vessel. The use of iron drifts to fasten the sides and the steep rake of the ends suggest that the barge was of late nineteenth-century to early twentieth-century origin. The area around the barge was sand and rock, with 15-foot-deep scours on each end of the vessel. Maximum water depth was 20 feet, and visibility was approximately 4 feet.

Site # 0082CFR	**State Plane Coordinates**
Kate	**2300723 E, 63027 N**
Target 2-D	

Target 2-D, located directly off the Southport/Bald Head ferry dock, had a positive monopolar magnetic signature of 440 gammas over an 11-pulse duration **(Figure 59)**. Corresponding sonagram records indicated a large scatter of debris over an area 100 feet in length and was exposed nearly 15 feet above the bottom surface. A reconnaissance dive made on Target 2-D located the remains of a steam vessel **(Figure 64)**. The bottom surface on the channel side of the wreckage was hard clay, but sand and shell hash covered most of the area. Visibility averaged 2 feet on the higher portions of the wreck and 1 foot on the bottom. Maximum water depth was 35 feet.

From September 30 to October 5 the UAU dive team examined the remains of a nineteenth-century steamboat. The wreckage was a mass of twisted metal and pipes surrounded by a scatter of coal. The upriver end of the vessel pointed slightly northeast, toward the channel. A baseline was positioned from the downriver end, being the zero point, to the upriver end. The total length of the exposed wreckage was 96 feet, and the beam measured 19 feet at 56 feet on the baseline. At the downriver end the only exposed feature was copper sheathing protruding 2 inches off the bottom surface. Ten feet down the baseline were two floor timbers, and at 30 feet the remains of a boiler were encountered. The top half of the boiler had been torn off, as if a salvage attempt had been made on the wreckage. Adjacent to the boiler was a piece of a paddlewheel hub lying next to the copper sheathing. The copper sheathing was observed from the zero mark to 75 feet, with the midships area having the most exposed sheathing. At the upriver end of the wreckage only a few exterior strakes were located among a pile of coal.


N
Coal Scatter
Copper Sheathing
Boiler
Air Vent
Paddlewheel Hub
Blockade Runner "Kate" (ex. "Carolina")
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Martin D. Peebles

Figure 64. Blockade Runner *Kate* (0082CFR).

The remains of the vessel located at Target 2-D were not positively identified until the artifacts retrieved from the site were examined. One of the artifacts recovered was a heavily encrusted ironstone plate. After the plate had been cleaned, a design could be discerned; the design showed a snake in the form of a circle around a palm tree. Above the palm tree was the name "Carolina", the former name of the blockade-runner *Kate* known to have been lost in the Cape Fear River (see account in Shipwrecks and Derelicts Section - Vol. 1).

The following sixteen artifacts were recovered from the *Kate*; a lamp base, an earthenware bottle, 2 bowl base fragments, a dinner plate fragment, a torpedo bottle, a dark green bottle, 2 clear bottles, a through-deck sleeve, 2 porthole fragments, 2 brass straps, 5 binnacle fragments, and a piece of copper sheathing.

The lamp base, artifact number 0082CFR1, was located on the channel side of the machinery area. The semicircular lamp base was made of brass sheet metal, included three wick holders, and had an ornamental design cut around the base. The artifact measured 7¼ inches in length, 5¾ inches in width, and 3¾ inches in height.

The earthenware bottle, artifact number 0082CFR2, was located on the inshore end, next to the machinery. The bottle had a cream-colored base, a light brown shoulder and lip, and was partially broken at the neck. The artifact measured 9 inches in length. The diameter of the base was 3 5/8 inches.

One of two bowl base fragments, artifact number 0082CFR3, was located on the inshore side of the machinery area. The bowl of white glazed ironstone, measured 5½ inches in diameter and 2½ inches in height.

A dinner plate, artifact number 0082CFR4, was located on the inshore side of the machinery area **(Figure 65)**. The plate fragment was white glazed ironstone with a maker's mark on the bottom and an ornamental design on the plate surface. The maker's mark consisted of the insignia of a lion and a unicorn with "[IRO]NSTONE CHINA" written beneath the design. The name of the maker, "[J]AMES Edwards," was also written beneath the design. Next to it, "James Edwards" was impressed into the plate, and beneath that name the word "Dalehall" was impressed into the plate. On the front of the plate was a design of a snake forming a circle around a palm tree, with "CAROLINA" written above the tree **(Figure 66)**. The fragmented dinner plate measured 9¼ inches in length of a projected 10 inches in diameter and was 5¾ inches in width and 1¼ inches in height.

Located inshore and next to the machinery area was another bowl base fragment, artifact number 0082CFR5. The ironstone bowl was white glazed with approximately one-fourth of the original bowl intact, including one side and the base. The artifact measured 10 inches in length, 8 inches in width, 4¼ inches in height. The projected diameter of the plate would have been 15 inches.

The torpedo bottle, artifact number 0082CFR6, was recovered on the inshore side of the vessel, next to the boiler. The light green bottle was made in a two-piece mold and had an applied blob lip, a pointed base, and a "K" embossed on the base. The bottle measured 8½ inches in length and was 3 inches in diameter.

A dark green bottle, artifact number 0082CFR7, was located on the inshore side of the machinery area. The bottle was free blown with an improved pontil and an applied lip. The exterior of the artifact had several places that were rough. The bottle measured 11¾ inches in height and 3¾ inches in diameter.

The through-deck sleeve, artifact number 0082CFR8, was located just aft of the machinery area **(Figure 67)**. The artifact was made from copper sheet metal and was brazed with brass lap joints down one side. The top was tapered and had twenty-two 2½-inch-long by ¼-inch handmade copper nails and a base with a lip 1¼ inches wide. The sleeve measured 12¾ inches in height and 11 inches inside diameter.

Two porthole fragments, artifact numbers 0082CFR9 and 0082CFR10, were found on the channel side, next to the machinery area. Only half of each porthole was left. Both fragments were of similar design and size and had a length of 11½ inches and a width of 2 inches, although they do not join.

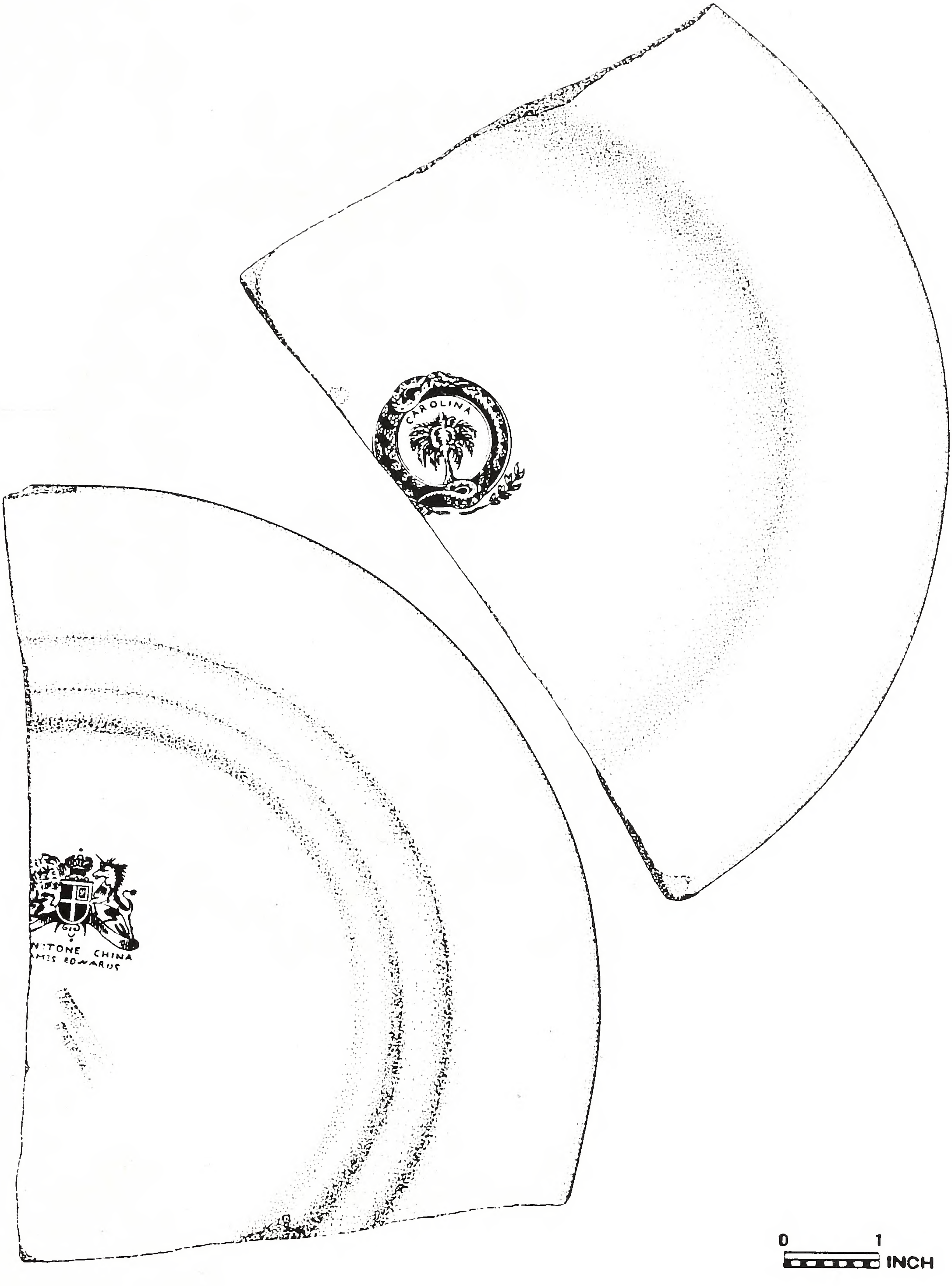
A brass strap, artifact number 0082CFR11, was located on the channel side, next to the machinery. The U-shaped artifact had a 5/8-inch hole in the center and a 3/8-inch hole in each end. "J. Light BODE * New York" was stamped on either side of the center hole. The strap measured 19½ inches in length and 1½ inches in width.

A second brass strap, artifact number 0082CFR12, was located on the channel side, next to the machinery. The D-shaped strap was ¾ inch wide and 1/64 inch thick. A solder spot was located on the straight side. The artifact measured 6½ inches in length and 7½ inches in width.

Five binnacle fragments, artifact number 0082CFR13, were located in a pile on the channel side of the machinery. The fragments were made from copper and brass and were in the form of a wire frame. One of the fragments formed a handle. The maximum length recorded was 9 inches and ½ inch in width.

A clear bottle, artifact number 0082CFR14, was located next to the boiler. The bottle was a pre-prohibition type with "one quart" embossed on the shoulder and "B" embossed on the base. The bottle measured 11¼ inches in length and 3½ inches in diameter at the base.

A section of copper sheathing, artifact number 0082CFR15, was recovered on the channel side of the vessel, next to the boiler. The sheathing was yellow metal, 1/64-inch


CAROLINA
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AMES EDWARDS
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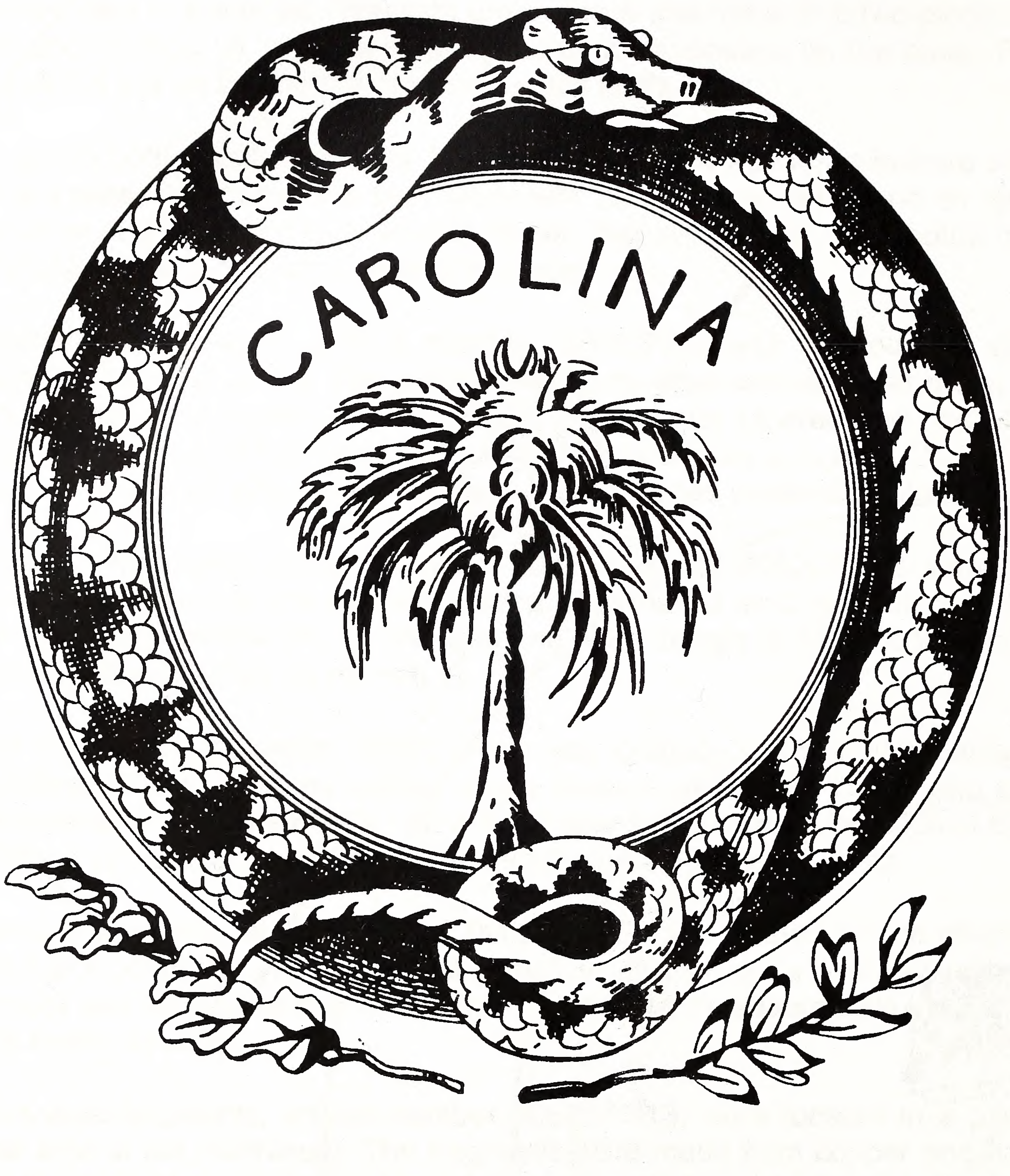
Figure 65. Plate Drawing from Blockade Runner *Kate*.



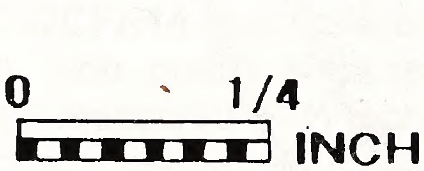


Figure 66. Plate Design from Blockade Runner *Kate*.

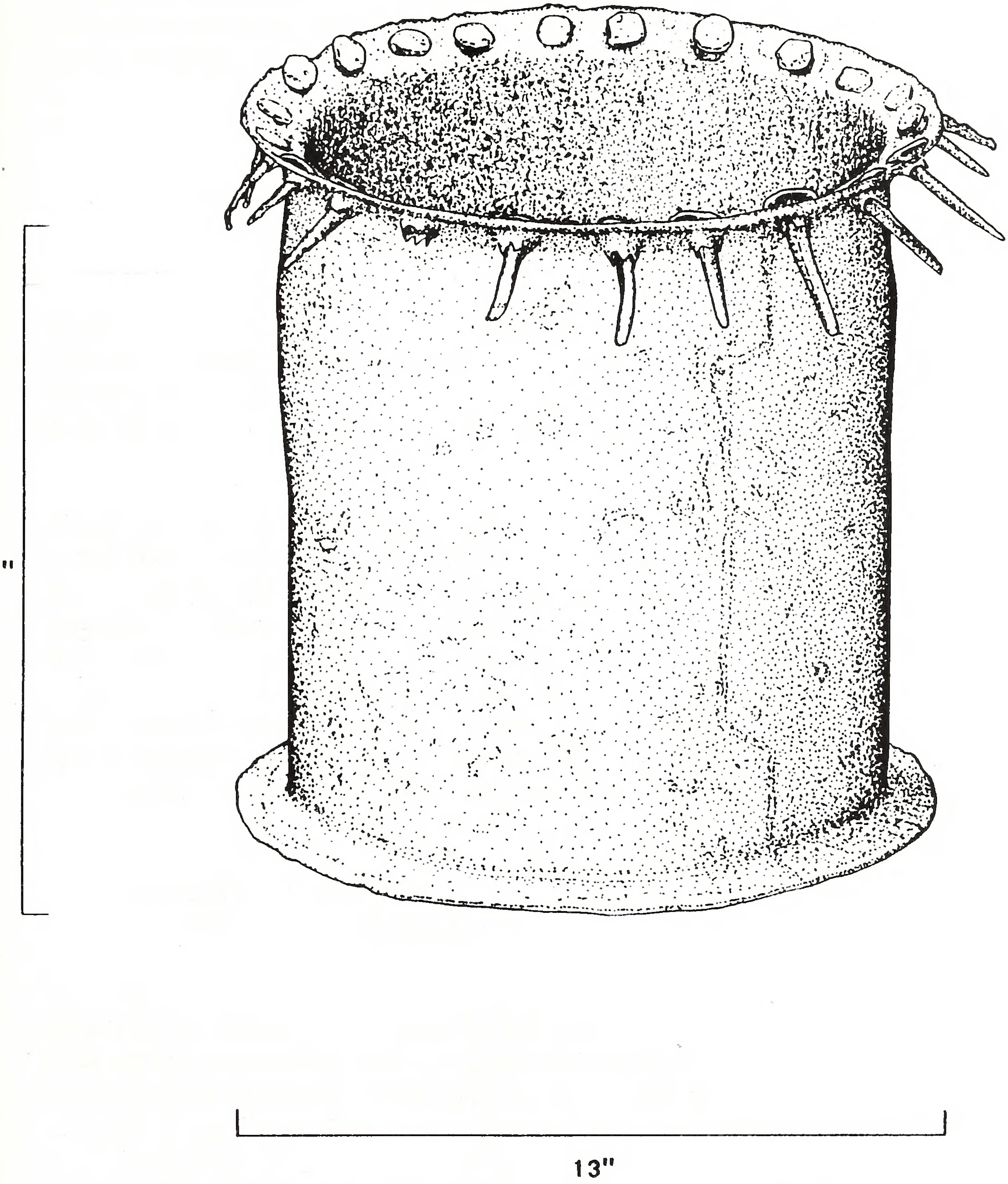


Figure 67. Through-Deck Sleeve from Blockade Runner *Kate*.

thick, and had ten nail holes. The piece measured 14½ inches in length and 3¼ inches in width.

A clear bottle, artifact number 0082CFR16, was located on the inshore side, next to the machinery. The quart-size bottle was formed by a three-piece mold and had an applied lip. The artifact measured 11½ inches in height and 3 1/8 inches in diameter at the base.

Site # 0078CFR
Compressor Barge
Target 3-E

State Plane Coordinates
2315370 E, 171980 N

Target 3-E was located on the western shoreline of the Cape Fear River, across from the Hess Oil Company terminal **(Figure 68)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying parallel to the shoreline just downriver from two large iron floats. The bottom sediment consisted of sand and mud.

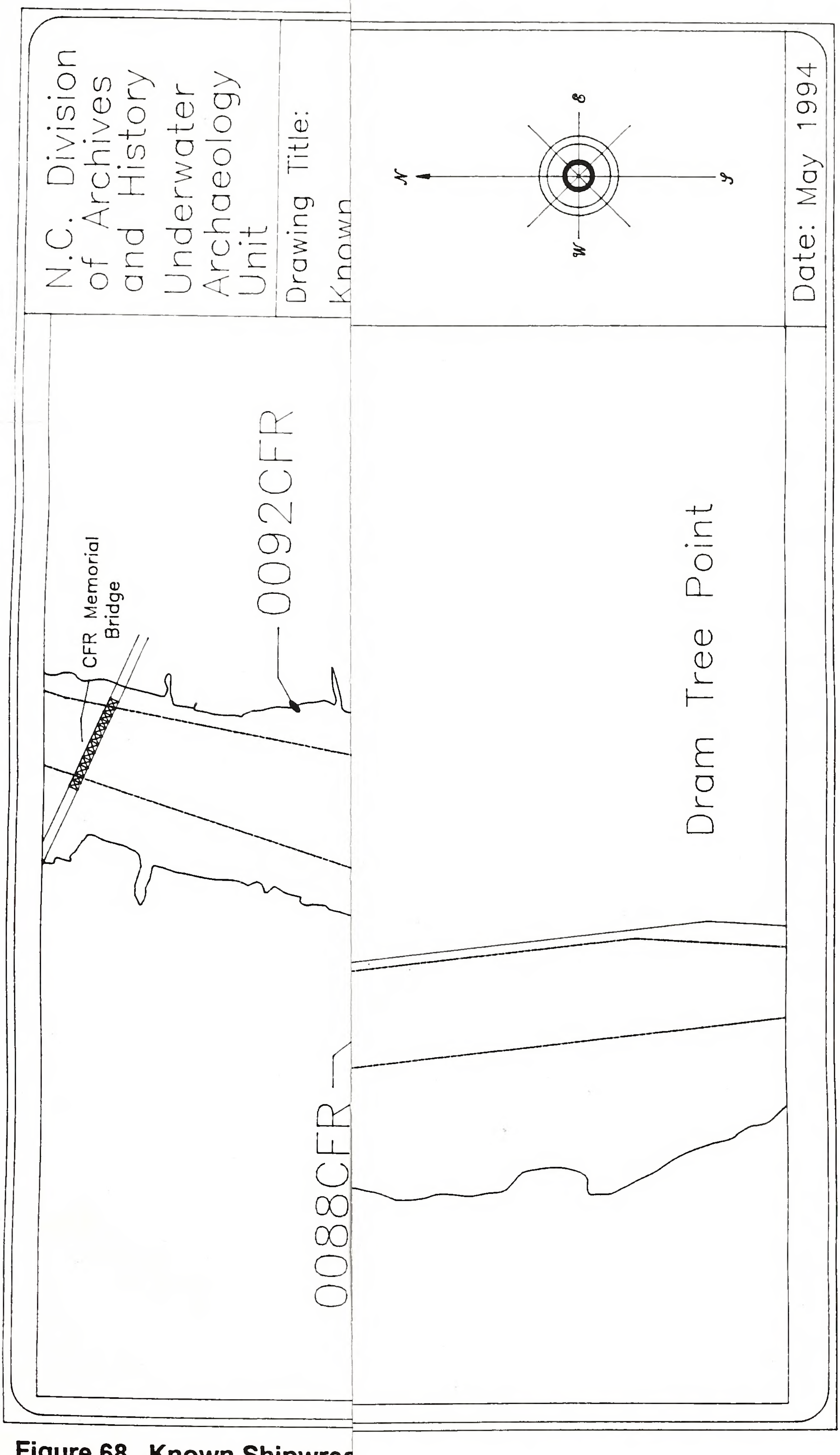
The 73-foot 6-inch long, 30-foot wide wooden barge was edge fastened with ¾-inch drift pins and had a depth of hold of 9 feet. The bottom was cross planked with 3-inch by 10-inch planks, and both ends of the barge were raked. Six 10-inch-by-10-inch longitudinal stringers were spaced on 4-foot centers. Although most were missing, originally there were twenty-six athwartship frames mortised into the chine logs. The extant frames measured 12 inches sided and 6 inches molded and were spaced on 2-foot 6-inch centers. Seven athwartship beams, only partially intact, were recorded; they measured 9 inches molded and 10 inches sided. A steam-powered air compressor was found between the second and third stringer, near the downriver end of the barge.

Site # 0090CFR
Innis Barge
Target 3-F

State Plane Coordinates
2315300 E, 171970 N

Target 3-F was located just inshore of Target 3-E **(Figure 68)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying in the marsh grass perpendicular to the shoreline. The bottom sediment was mud and marsh grass.

The wooden barge was 55 feet long, 19 feet 7 inches wide, cross planked, and raked on both ends. The vessel's sides were edge fastened with ¾-inch drift pins. Five longitudinal stringers—13 inches molded, 6 inches sided, and spaced on 3-foot centers—were found within the hull. Five athwartships beams were fastened across the


N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
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Date: May 1994
CFR Memorial Bridge
0092CFR
Dram Tree Point
0088CFR

Figure 68. Known Shipwrec

thick, and had ten nail holes. The piece measured 14½ inches in length and 3¼ inches in width.

A clear bottle, artifact number 0082CFR16, was located on the inshore side, next to the machinery. The quart-size bottle was formed by a three-piece mold and had an applied lip. The artifact measured 11½ inches in height and 3 1/8 inches in diameter at the base.

Site # 0078CFR	**State Plane Coordinates**
Compressor Barge	**2315370 E, 171980 N**
Target 3-E	

Target 3-E was located on the western shoreline of the Cape Fear River, across from the Hess Oil Company terminal **(Figure 68)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying parallel to the shoreline just downriver from two large iron floats. The bottom sediment consisted of sand and mud.

The 73-foot 6-inch long, 30-foot wide wooden barge was edge fastened with ¾-inch drift pins and had a depth of hold of 9 feet. The bottom was cross planked with 3-inch by 10-inch planks, and both ends of the barge were raked. Six 10-inch-by-10-inch longitudinal stringers were spaced on 4-foot centers. Although most were missing, originally there were twenty-six athwartship frames mortised into the chine logs. The extant frames measured 12 inches sided and 6 inches molded and were spaced on 2-foot 6-inch centers. Seven athwartship beams, only partially intact, were recorded; they measured 9 inches molded and 10 inches sided. A steam-powered air compressor was found between the second and third stringer, near the downriver end of the barge.

Site # 0090CFR	**State Plane Coordinates**
Innis Barge	**2315300 E, 171970 N**
Target 3-F	

Target 3-F was located just inshore of Target 3-E **(Figure 68)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying in the marsh grass perpendicular to the shoreline. The bottom sediment was mud and marsh grass.

The wooden barge was 55 feet long, 19 feet 7 inches wide, cross planked, and raked on both ends. The vessel's sides were edge fastened with ¾-inch drift pins. Five longitudinal stringers—13 inches molded, 6 inches sided, and spaced on 3-foot centers—were found within the hull. Five athwartships beams were fastened across the

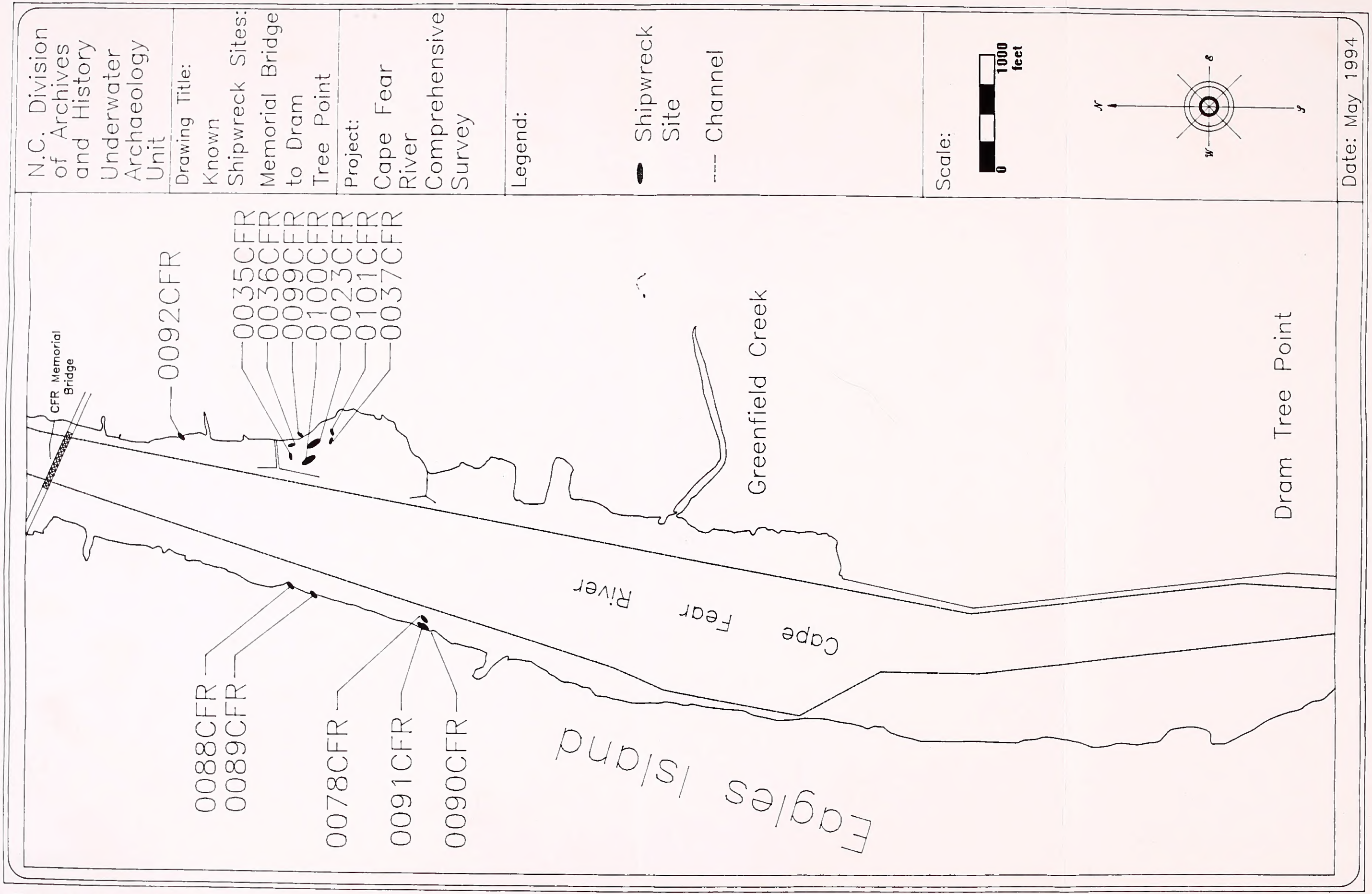

N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Known Shipwreck Sites: Memorial Bridge to Dram Tree Point
Project:
Cape Fear River Comprehensive Survey
Legend:
Shipwreck Site
Channel
Scale:
0
1000 feet
N
S
E
W
Date: May 1994
CFR Memorial Bridge
0092CFR
0035CFR
0036CFR
0099CFR
0100CFR
0023CFR
0101CFR
0037CFR
Greenfield Creek
Dram Tree Point
Cape Fear River
Eagles Island
0088CFR
0089CFR
0078CFR
0091CFR
0090CFR

Figure 68. Known Shipwreck Sites: Memorial Bridge to Dram Tree Point.

top of the stringers on 11-foot centers. The remains of 6-inch by 6-inch frames on 3-foot centers were observed along the interior side of the barge.

Site # 0091CFR	**State Plane Coordinates**
Floating Tank Barge	**2315310 E, 172010 N**
Target 3-G	

Target 3-G was located just north of Target 3-E and behind two floating tanks **(Figure 68)**. The low-water survey located the remains of a twentieth-century barge lying on the beach perpendicular to the shoreline. The bottom sediment was mud, sand, and marsh grass.

The wooden barge was 60 feet in length and 24 feet 2 inches in width. The vessel was edge fastened with 1-inch drift pins and 1-inch iron bolts with square nuts and showed evidence that it had been decked over. There were two layers of side planking; the inner planks measured 6 inches by 9 inches, and the exterior planks, which were fastened to the inner planks with round head wire nails, measured 3 inches by 8 inches. The two chine logs measured 8 inches molded and 6 inches sided. The barge had two composite longitudinal stringers made up of three timbers bolted together. The stringers measured 16 inches sided and 8 inches molded. The stringers showed evidence that 6-inch by 6-inch stanchions, on 2-foot centers, were originally placed on top of the stringers to support deck beams now missing. Like the sides, the bottom of the barge was made of two layers of planking. The inner athwartship planks measured 3 inches by 12 inches, and the exterior longitudinal planks measured 2½ inches by 7¾ inches.

Site # 0089CFR	**State Plane Coordinates**
Eagles Island Wooden Barge	**2315600 E, 173020 N**
Target 3-H	

Target 3-H was located on the western shoreline, across the river from the Cape Fear Terminal and exposed at low tide between the marsh grass and sand beach **(Figure 68)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying on the beach parallel to the shoreline. The bottom sediment was sand, mud, and marsh grass.

The exposed portions of the wooden barge measured 59 feet in length, but the beam could not be measured because of the amount of mud and marsh grass that covered over 90 percent of the vessel. The exposed remains did reveal that the barge was edge fastened with ¾-inch drift pins and that the side planking consisted of two layers. Inner planks measured 5 inches by 12 inches, and the exterior planks were fastened to the inner planks with round head ½-inch spikes. On the upriver end, three 5-inch by 11 inch longitudinal stringers on 3-foot centers, were observed. A 7-inch by 11-inch chine log was exposed at the upriver end, as was athwartship bottom planking that measured 2½ inches by 11 inches. Six-inch by six-inch frames were attached to the exposed side on 4-foot centers. The exposed upriver end was raked.

Site # 0088CFR	**State Plane Coordinates**
Eagles Island Metal Barge	**2315700 E, 173240 N**
Target 3-I	

Target 3-I was located on a sand beach just upriver from Target 3-H **(Figure 68)**. The low-water survey located the remains of a mid-twentieth-century metal barge lying on the beach parallel to the shoreline. The bottom sediment was sand.

The decked metal barge measured 86 feet in length and 30 feet 8 inches in beam. The seams of the vessel were both welded and riveted, and both ends were raked. An athwartships bulkhead was located 11 feet from either end of the barge, and a third athwartships bulkhead was located amidships. Two longitudinal girders and twelve longitudinal stringers ran the length of the vessel. Eight athwartship deck beams rested on top of the stringers. At each intersection of a stringer and a deck beam, a section of angle iron was welded to each component to serve as a deck stanchion.

Site # 0092CFR	**State Plane Coordinates**
Dawson Street Barge	**2317010 E, 174180 N**
Target 3-J	

Target 3-J was located on the east bank of the Cape Fear River, adjacent to the foot of Dawson Street **(Figure 68)**. The low-water survey located the remains of a late nineteenth-century to early twentieth-century barge lying on the beach perpendicular to the shoreline. The bottom sediment was sand and rock.

The exposed portion of the wooden barge measured 38 feet in length and 20 feet 1 inch in beam. The vessel was edge fastened with ¾-inch drift pins, cross planked, and raked on the exposed end. Five 6-inch by 10-inch longitudinal stringers on 3-foot 6-inch centers were partially exposed at the offshore end. Notches on each stringer revealed the original placement of deck stanchions set on 4-foot 6-inch centers. Two 8-inch by 12-inch athwartship beams were located inside the hull on top of the stringers. Two frames were located on the upriver side of the barge.

Site # 0086CFR	**State Plane Coordinates**
Brunswick Town Barge	**2320250 E, 104690 N**
Target 4-O	

Target 4-O was located near the shoreline at Brunswick Town and had a bipolar magnetic signature of 700 gammas over a 16-pulse duration **(Figure 69)**. Corresponding sonagram records indicated several linear objects exposed approximately 3 feet off the bottom surface. Diver investigation discovered a wooden structure. The bottom sediment was sand, clay, and silt. Visibility averaged 1 foot, and maximum water depth was 10 feet.

Target 4-0 was relocated with the magnetometer and buoyed for diver investigation. The initial survey located scattered debris, including a 3-inch diameter pipe 6 feet in length, several 8- to 12-inch diameter pilings lying on the bottom surface, and some 1½-inch by 6-inch wooden planks. Further investigation of the area revealed a wooden structure, probably the remains of a decked barge. The barge was located approximately 75 feet offshore and was perpendicular to the shoreline. No definite ends of the structure were located. The inshore remains were exposed only a few inches off the bottom, with the offshore portion of the wreckage exposed 3 feet. At the offshore end, three 4-inch by 4-inch deck beams and six 4-inch by 4-inch stanchions were located. The deck beams were spaced 2 feet apart and fastened with 1-inch iron drift pins with round heads. Some deck planks were attached to the deck beams on the offshore end. The stanchions were exposed 2 feet 6 inches off the bottom surface.

The amidships portion of the wreckage was badly deteriorated, and only a few inches of side planking were exposed. Toward the inshore section several iron drift pins were protruding from the bottom surface next to several broken ¼-inch thick metal plates. The metal plates were noted at both ends of the structure. The overall length of the structure was 56 feet, measured from the last exposed deck beam to the last exposed iron drift pin. A beam measurement could not be obtained because of the lack of structure on the opposite side. A 1929 U.S. Coast and Geodetic Survey map marked a dock at the same location as Target 4-O.

Site # 0083CFR	**State Plane Coordinates**
Campbell Island Wreck	**2321320 E, 135200 N**
Target 5-C	

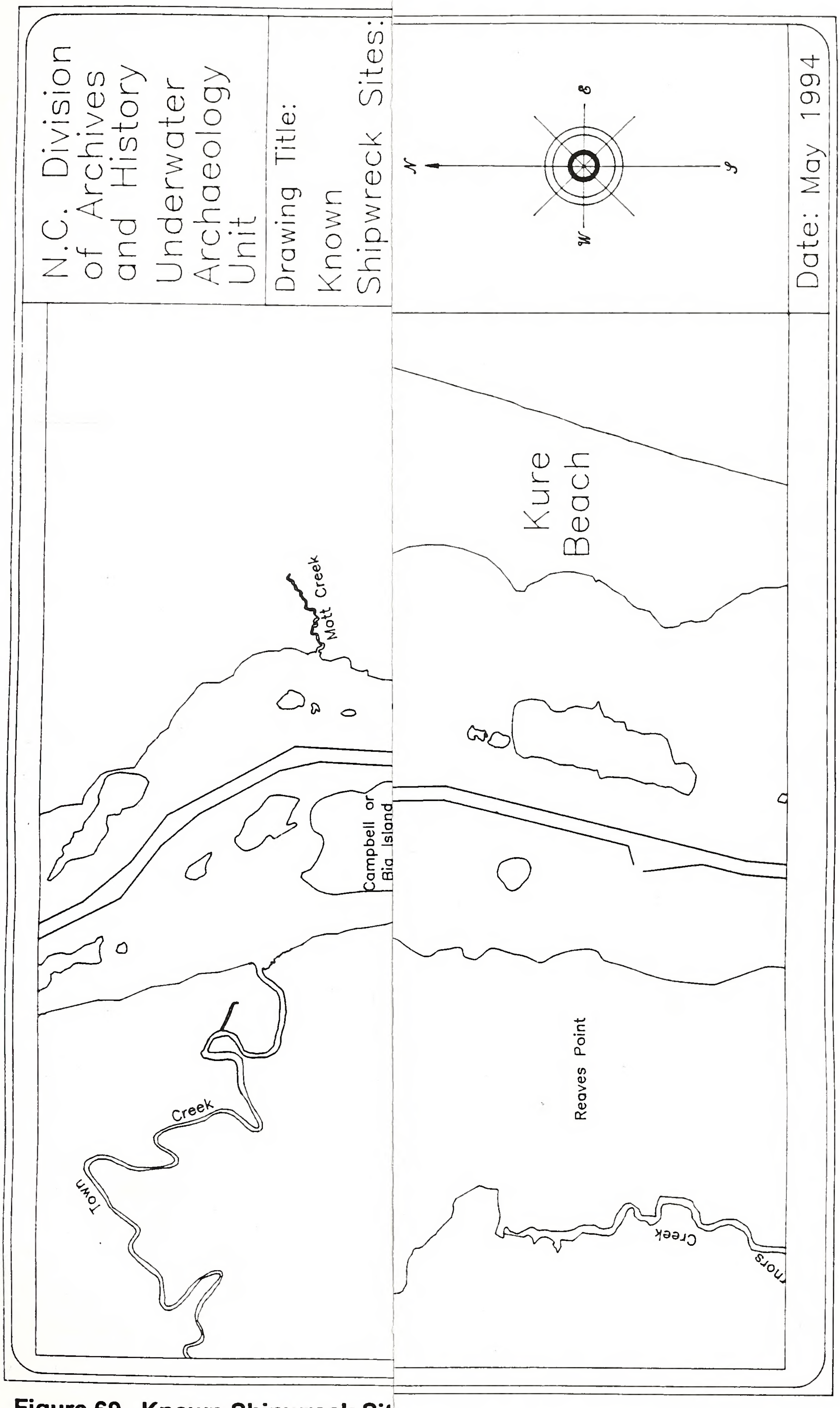
Target 5-C was located on the eastern shoreline of Campbell Island and had a positive monopolar magnetic signature of 300 gammas over a 9-pulse duration **(Figure 69)**. No corresponding sonagram records were associated with the magnetic signature because of the shallow depth of the target. Archaeological investigation located a vessel partially exposed on the shoreline at low tide **(Figure 70)**. The bottom sediment was sand, clay, and mud, with 1-foot of visibility on the bottom surface.

The UAU survey team located the partially exposed vessel at low tide. Between December 7 and 10 the team investigated site 0083CFR. Probing the area in the marsh grass defined the bow of the vessel. Located beside the starboard bow, and in the marsh grass over the bow, was a pile of ballast stones. The location of the ballast stones suggested that it was not associated with the vessel. Once the bow was located, the stern was probed and marked. A baseline was extended from the bow to the stern, with the bow marked as the zero end. Both the starboard and port sides of the vessel were exposed at low tide. The total length measured 89 feet 4 inches, and the beam was 20 feet 6 inches.

Cross sections were taken at the bow, amidships, and stern. The bow area was first probed and then dredged to determine its shape and dimensions. A 3-foot-wide by 4-foot 6-inch-long cross section was dredged, which revealed a sharp bow. The stem post was broken below the reinforcing iron strap positioned around the bow. The strap was wrapped around both sides of the vessel, extending 1 foot 10 inches on each side. A 4-inch-wide iron shoe was positioned in front of the stempost. Three 1-inch-diameter iron pins protruded from both sides of the strap and angled slightly toward the stern. A single 1-inch-diameter iron pin, 1 foot 6 inches in length, protruded from the forward end of the strap toward the stern. The forward end of one of the starboard stringers was located beside the center longitudinal girder. A 1-inch-diameter bolt with a 2-inch-square nut that secured the stringer was uncovered 4 feet from the end of the bow. The 3½-inch-thick center longitudinal girder extended to the remains of the stempost. Just aft of the cross section a piece of the caprail was exposed on the starboard side. No other evidence of a caprail was recorded.

The second cross section was located 48 feet aft of the bow, and the following observations were recorded. The vessel was edge fastened with iron drift pins. Iron pins were observed protruding from the top plank, which was used to fasten the caprail to the gunwale. Each set of pins, two per set, were positioned 4 inches apart and 2 feet from each set. The gunwale was formed by adding a strake to the outside and a beam shelf to the inside of the top strake. The timbers were fastened with 1-inch-diameter, 9-inch long, round head iron bolts with 2-inch-square nuts. The bolts were spaced approximately 2 feet apart. The strake measured 2 inches thick and 12 inches wide, and the beam shelf measured 2 inches thick and 9 inches wide. Three longitudinal stringers were located between the side of the vessel and the center longitudinal girder. The stringers measured 6 inches wide and were spaced approximately 2 feet apart. The vessel had a cross planked flat bottom, and there was no evidence of internal side frames.

The last cross section was excavated in the stern. Elevations taken 78 feet to 89 feet 4 inches from the bow indicated a raked square stern. The rise of the stern started approximately 78 feet from the bow. The beam at the stern measured 19 feet. No mast steps or evidence of machinery were observed on the vessel. Because of the lack of machinery, or sails for power, it is thought that the vessel was most likely used as a


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Known Shipwreck Sites:
Date: May 1994
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E
S
W
Kure Beach
Mott Creek
Campbell or Big Island
Reaves Point
Town Creek
Creek
nors Creek

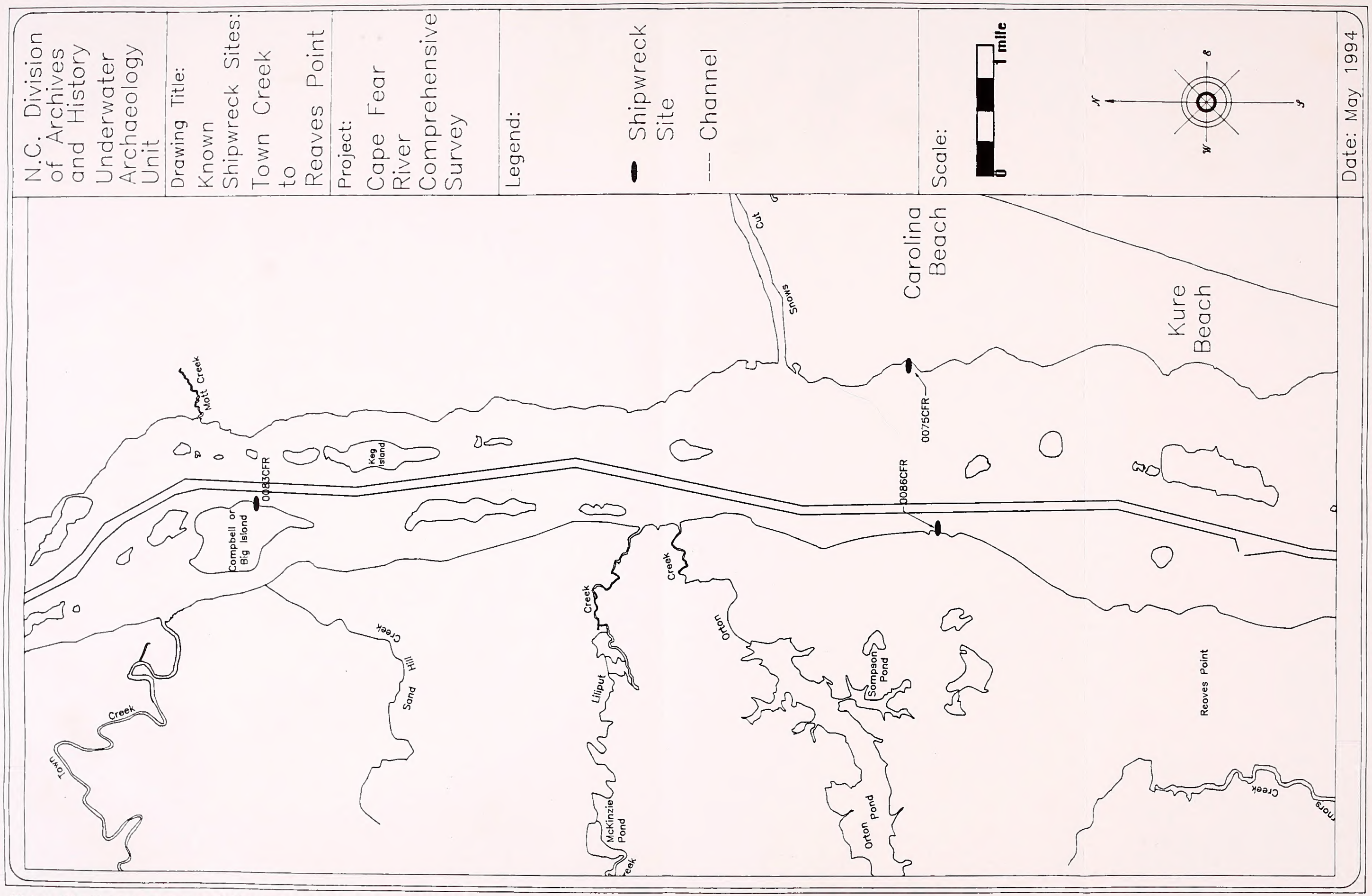
Figure 69. Known Shipwreck Sit

The UAU survey team located the partially exposed vessel at low tide. Between December 7 and 10 the team investigated site 0083CFR. Probing the area in the marsh grass defined the bow of the vessel. Located beside the starboard bow, and in the marsh grass over the bow, was a pile of ballast stones. The location of the ballast stones suggested that it was not associated with the vessel. Once the bow was located, the stern was probed and marked. A baseline was extended from the bow to the stern, with the bow marked as the zero end. Both the starboard and port sides of the vessel were exposed at low tide. The total length measured 89 feet 4 inches, and the beam was 20 feet 6 inches.

Cross sections were taken at the bow, amidships, and stern. The bow area was first probed and then dredged to determine its shape and dimensions. A 3-foot-wide by 4-foot 6-inch-long cross section was dredged, which revealed a sharp bow. The stem post was broken below the reinforcing iron strap positioned around the bow. The strap was wrapped around both sides of the vessel, extending 1 foot 10 inches on each side. A 4-inch-wide iron shoe was positioned in front of the stempost. Three 1-inch-diameter iron pins protruded from both sides of the strap and angled slightly toward the stern. A single 1-inch-diameter iron pin, 1 foot 6 inches in length, protruded from the forward end of the strap toward the stern. The forward end of one of the starboard stringers was located beside the center longitudinal girder. A 1-inch-diameter bolt with a 2-inch-square nut that secured the stringer was uncovered 4 feet from the end of the bow. The 3½-inch-thick center longitudinal girder extended to the remains of the stempost. Just aft of the cross section a piece of the caprail was exposed on the starboard side. No other evidence of a caprail was recorded.

The second cross section was located 48 feet aft of the bow, and the following observations were recorded. The vessel was edge fastened with iron drift pins. Iron pins were observed protruding from the top plank, which was used to fasten the caprail to the gunwale. Each set of pins, two per set, were positioned 4 inches apart and 2 feet from each set. The gunwale was formed by adding a strake to the outside and a beam shelf to the inside of the top strake. The timbers were fastened with 1-inch-diameter, 9-inch long, round head iron bolts with 2-inch-square nuts. The bolts were spaced approximately 2 feet apart. The strake measured 2 inches thick and 12 inches wide, and the beam shelf measured 2 inches thick and 9 inches wide. Three longitudinal stringers were located between the side of the vessel and the center longitudinal girder. The stringers measured 6 inches wide and were spaced approximately 2 feet apart. The vessel had a cross planked flat bottom, and there was no evidence of internal side frames.

The last cross section was excavated in the stern. Elevations taken 78 feet to 89 feet 4 inches from the bow indicated a raked square stern. The rise of the stern started approximately 78 feet from the bow. The beam at the stern measured 19 feet. No mast steps or evidence of machinery were observed on the vessel. Because of the lack of machinery, or sails for power, it is thought that the vessel was most likely used as a


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title: Known Shipwreck Sites: Town Creek to Reaves Point
Project: Cape Fear River Comprehensive Survey
Legend:
Shipwreck Site
Channel
Scale:
0
1 mile
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E
W
Date: May 1994
Snows Cut
Carolina Beach
Kure Beach
Mott Creek
Keg Island
0083CFR
Campbell or Big Island
0075CFR
0086CFR
Town Creek
Sand Hill Creek
Liliput Creek
McKinzie Pond
Creek
Orton Creek
Sompson Pond
Orton Pond
Reaves Point
Snows Creek

Figure 69. Known Shipwreck Sites: Town Creek to Reaves Point.

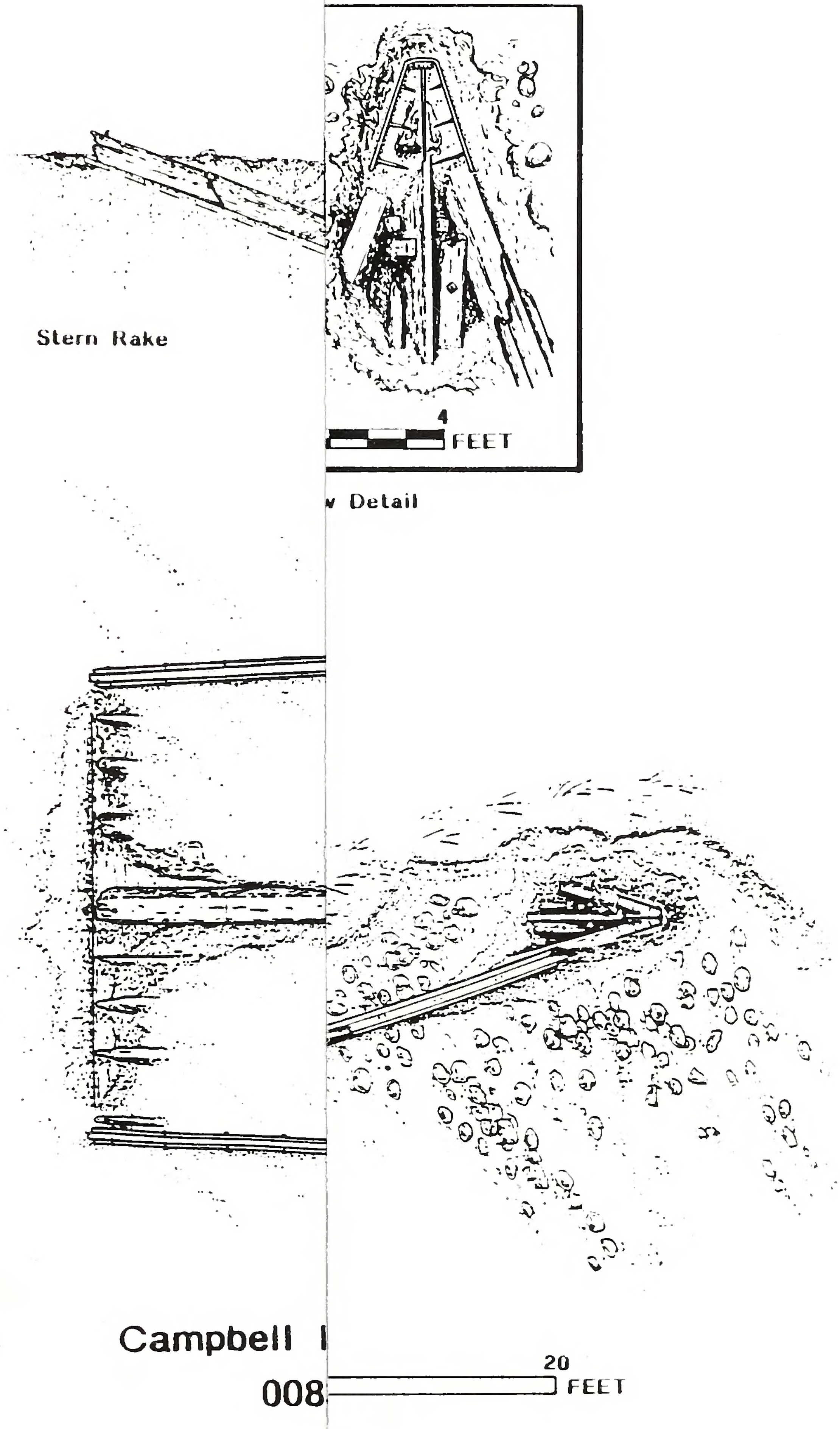
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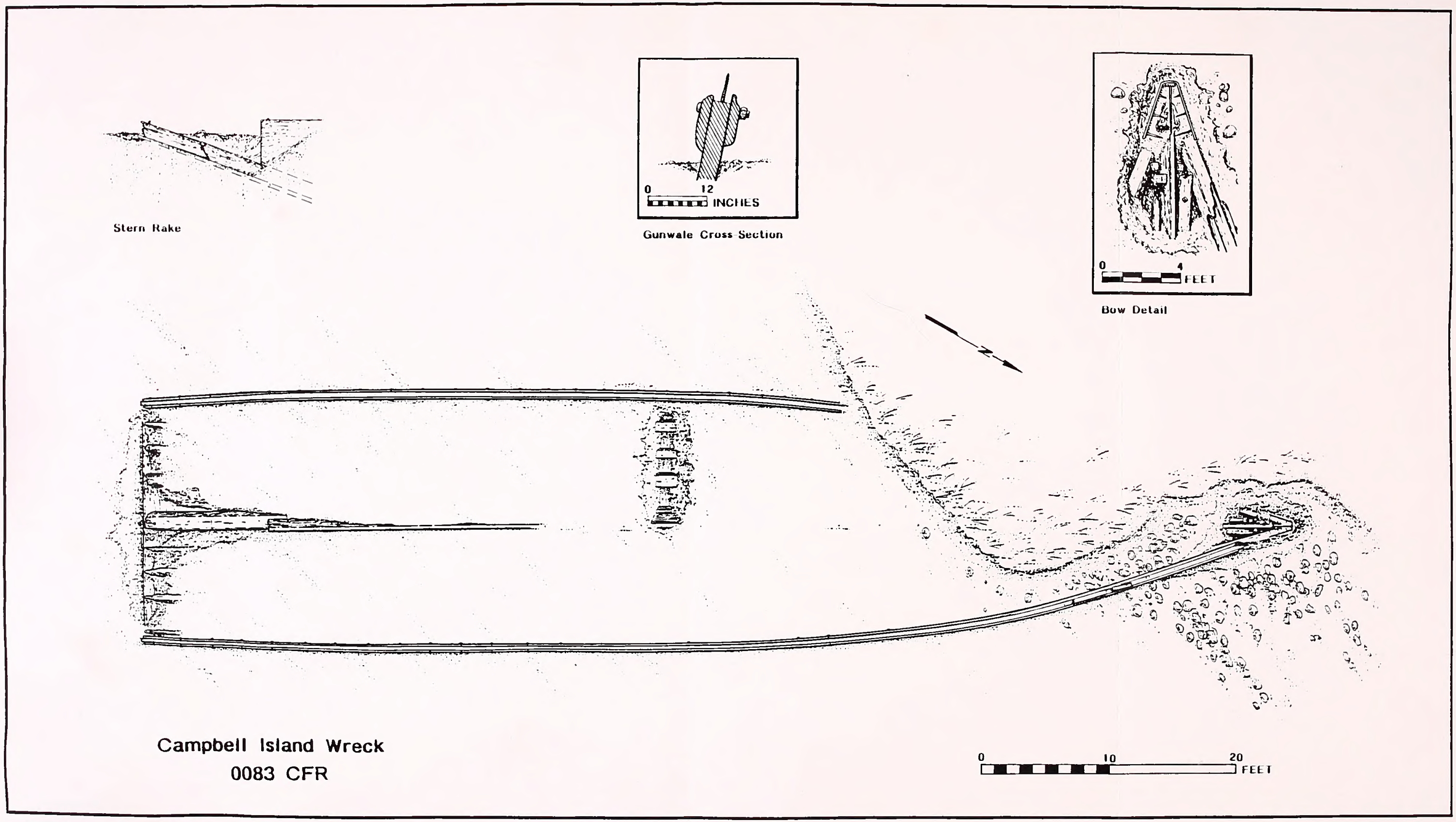
Figure 70. Campbell Island Wre


Stern Rake
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12
INCHES
Gunwale Cross Section
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Bow Detail
N
Campbell Island Wreck
0083 CFR
0
10
20
FEET

Figure 70. Campbell Island Wreck (0083CFR).

barge. Based on the construction techniques and fasteners, a construction period between the late nineteenth century and the early twentieth century is suggested for the vessel.

Site # 0047NER
Mouth of Smiths Creek Barge
Target 6-N

State Plane Coordinates
2317770 E, 189525 N

Target 6-N had a bipolar magnetic signature of 940 gammas over a 7-pulse duration **(Figure 53)**. Corresponding sonagram records indicated an object exposed approximately 3 feet above the bottom surface that covered an area of approximately 20 feet by 40 feet. A diver reconnaissance of the area discovered the remains of a partially exposed small wooden vessel. The bottom sediment was mostly mud. Visibility ranged from 6 inches to 1 foot. Maximum water depth was 10 feet.

Located at the mouth of Smiths Creek, about ¼ mile north of the Hilton Railroad Bridge, were the remains of a small wooden vessel, possibly a barge, positioned perpendicular to the shoreline. The exposed portion of the wreck measured 50 feet in length and had a 14-foot beam. Exterior strakes were exposed on both sides of the vessel; they were between 8 and 10 inches wide and were between 3½ and 4 inches thick. The keelson measured 10 inches by 16 inches and extended the length of the vessel. Two large 2-inch-diameter and 8-inch-long bolts were observed near the inshore end of the vessel, with a distance of 6 feet between the bolts.

Site # 0084CFR
Fort Caswell Steamer
Target 9-C

State Plane Coordinates
2299250 E, 54345 N

Target 9-C was located approximately 300 yards downriver from the Fort Caswell pier and had a bipolar magnetic signature of 380 gammas over a 22-pulse duration **(Figure 59)**. Corresponding sonagram records indicated a large scatter nearly 100 feet in length and exposed up to 10 feet off the bottom surface. Diver investigation located several 8-inch by 8-inch wooden ship frames surrounded by a scatter of red bricks on the bottom surface. The target was then buoyed for further investigation. The bottom sediment was sand and clay, and visibility ranged from 6 inches to 3 feet.

From November 2 to 8 the UAU team investigated the remains of what appeared to be a wooden-hulled steam vessel. The wreck was located on the channel slope, where the water depth varied from 35 feet to 54 feet. Strong currents, limited diving time, structural deterioration of the vessel, and the lack of visibility hampered the investigation of this site. It was not possible to ascertain the overall wreck dimensions or the type of steam engine. The following observations were made at the site, however. The main feature was the steam machinery, including the remains of two boilers. The longitudinal axis of the wreckage appeared to be positioned east-west, according to the alignment of the boilers. The boiler on the channel side of the wreckage lay on its side and contained a firebox opening, 12 inches by 20 inches. Because the boiler was partially buried in sand, the length could not be obtained. Most of the steam machinery was located in the extreme eastern section of the site. The type and size of the steam engine was not determined because of the low visibility and destruction of the machinery. What appeared to be a paddlewheel hub was observed northeast of the machinery area. The iron wheel was approximately 3 feet in diameter and was exposed 2 feet off the bottom surface. Several floor timbers that measured 8 inches by 12 inches were found on the north side of the wreckage in about 48 feet of water. An iron cylinder located beside the floors measured 5 feet in length, 3 feet in diameter, and 1½ inches in thickness. On the southern side of the wreck, under part of the vessel structure, several 10-inch diameter pilings were observed.

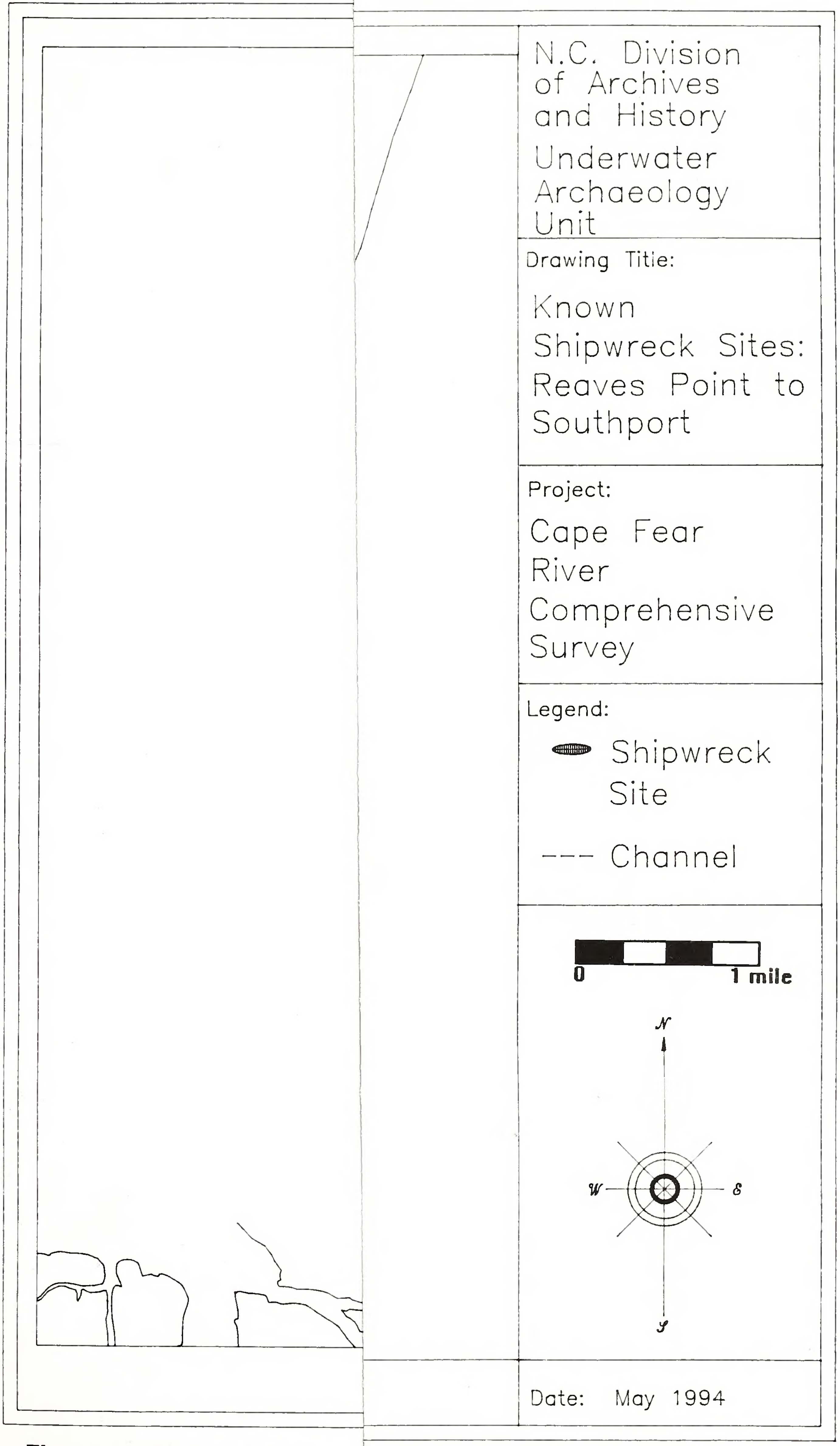
The observed remains suggest that the wreckage was that of a nineteenth-century steamboat. No identification of the vessel could be made from the limited remains. One possible candidate, however, is the steamboat *Fayetteville*, which was lost off Fort Caswell in 1853 (see account in the Shipwrecks and Derelicts Section - Vol. 1).

Site # 0003NEI	**State Plane Coordinates**
CSS *Raleigh*	**2317780 E, 77050 N**
Target 10-C	

Target 10-C had a bipolar magnetic signature of 1,200 gammas over a 23-pulse duration **(Figure 71)**. Sonar records were not available at the time of the survey. Diver reconnaissance of the area located the remains of the Civil War ironclad *Raleigh* **(Figure 72)**. The bottom sediment was sand, with a light layer of silt. Visibility ranged from 6 inches to 3 feet.

The remains of the *Raleigh* were located several hundred yards off "The Rocks," a man-made seawall constructed between Federal Point and Smith Island. Much of the vessel was covered in sand and mud, but portions of the casemate, bow, and stern were exposed. The vessel was positioned perpendicular to the channel, with the bow pointing slightly upriver to the west. The casemate was almost completely destroyed except for the forward starboard section and the remaining 2 feet of casemate down the starboard side of the vessel. Fishing net covered much of the bow section, making diving operations difficult.

A baseline was stretched from bow to stern, with the bow being the zero end. The overall length measured 174 feet. At 48 feet from the bow the beam measured 43 feet. At 20 feet from the bow the beam measured 33 feet. The bow was relatively intact, but most of the stern was badly deteriorated. The iron rudder, 5 feet wide and 3½ inches thick, was partially exposed approximately 3 feet off the bottom surface at 173 feet from


N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Known Shipwreck Sites: Reaves Point to Southport
Project:
Cape Fear River Comprehensive Survey
Legend:
● Shipwreck Site
--- Channel
0
1 mile
N
W
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S
Date: May 1994

Figure 71. Known Shipwreck

however. The main feature was the steam machinery, including the remains of two boilers. The longitudinal axis of the wreckage appeared to be positioned east-west, according to the alignment of the boilers. The boiler on the channel side of the wreckage lay on its side and contained a firebox opening, 12 inches by 20 inches. Because the boiler was partially buried in sand, the length could not be obtained. Most of the steam machinery was located in the extreme eastern section of the site. The type and size of the steam engine was not determined because of the low visibility and destruction of the machinery. What appeared to be a paddlewheel hub was observed northeast of the machinery area. The iron wheel was approximately 3 feet in diameter and was exposed 2 feet off the bottom surface. Several floor timbers that measured 8 inches by 12 inches were found on the north side of the wreckage in about 48 feet of water. An iron cylinder located beside the floors measured 5 feet in length, 3 feet in diameter, and 1½ inches in thickness. On the southern side of the wreck, under part of the vessel structure, several 10-inch diameter pilings were observed.

The observed remains suggest that the wreckage was that of a nineteenth-century steamboat. No identification of the vessel could be made from the limited remains. One possible candidate, however, is the steamboat *Fayetteville*, which was lost off Fort Caswell in 1853 (see account in the Shipwrecks and Derelicts Section - Vol. 1).

Site # 0003NEI
CSS *Raleigh*
Target 10-C

State Plane Coordinates
2317780 E, 77050 N

Target 10-C had a bipolar magnetic signature of 1,200 gammas over a 23-pulse duration **(Figure 71)**. Sonar records were not available at the time of the survey. Diver reconnaissance of the area located the remains of the Civil War ironclad *Raleigh* **(Figure 72)**. The bottom sediment was sand, with a light layer of silt. Visibility ranged from 6 inches to 3 feet.

The remains of the *Raleigh* were located several hundred yards off "The Rocks," a man-made seawall constructed between Federal Point and Smith Island. Much of the vessel was covered in sand and mud, but portions of the casemate, bow, and stern were exposed. The vessel was positioned perpendicular to the channel, with the bow pointing slightly upriver to the west. The casemate was almost completely destroyed except for the forward starboard section and the remaining 2 feet of casemate down the starboard side of the vessel. Fishing net covered much of the bow section, making diving operations difficult.

A baseline was stretched from bow to stern, with the bow being the zero end. The overall length measured 174 feet. At 48 feet from the bow the beam measured 43 feet. At 20 feet from the bow the beam measured 33 feet. The bow was relatively intact, but most of the stern was badly deteriorated. The iron rudder, 5 feet wide and 3½ inches thick, was partially exposed approximately 3 feet off the bottom surface at 173 feet from

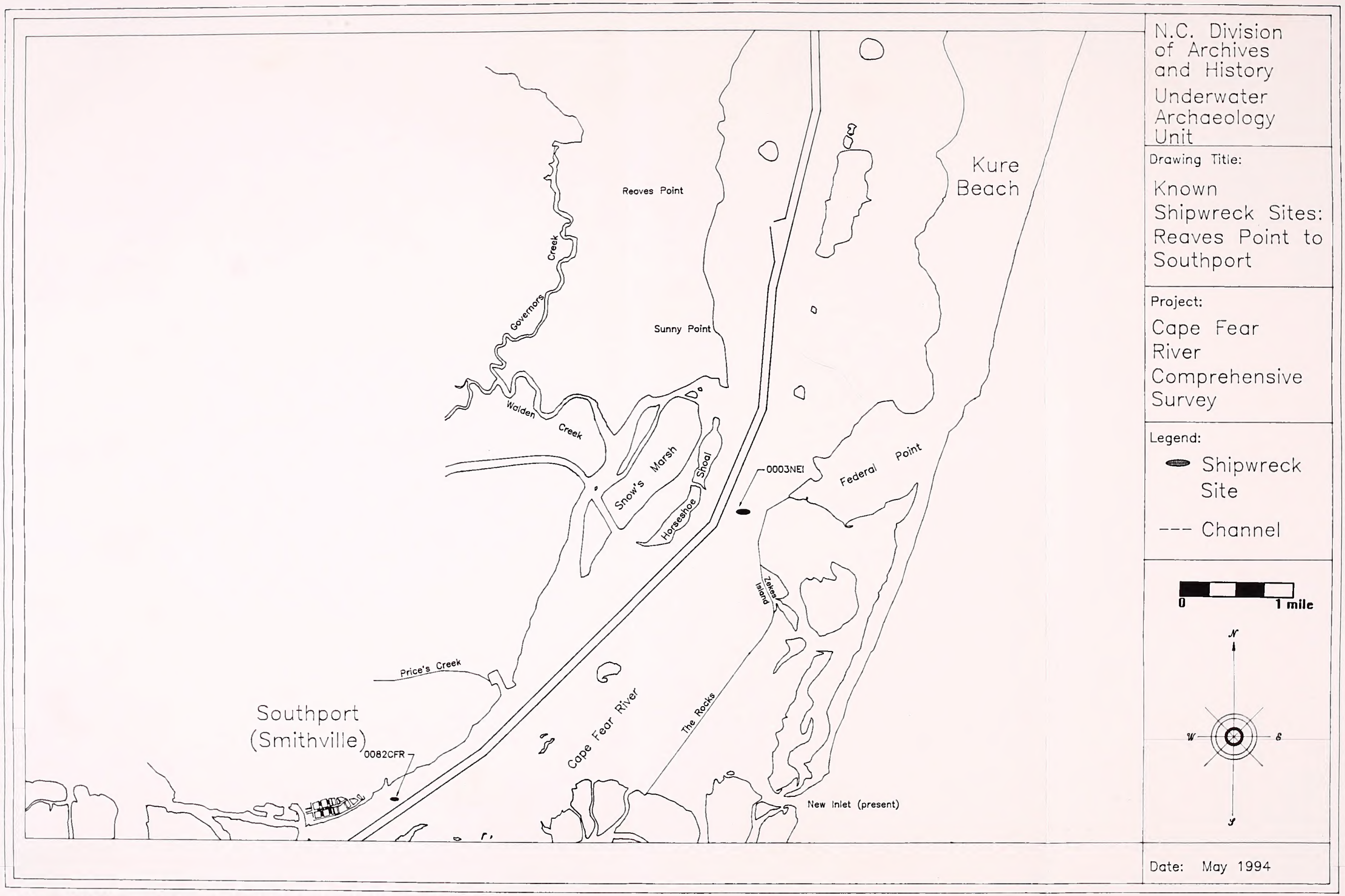
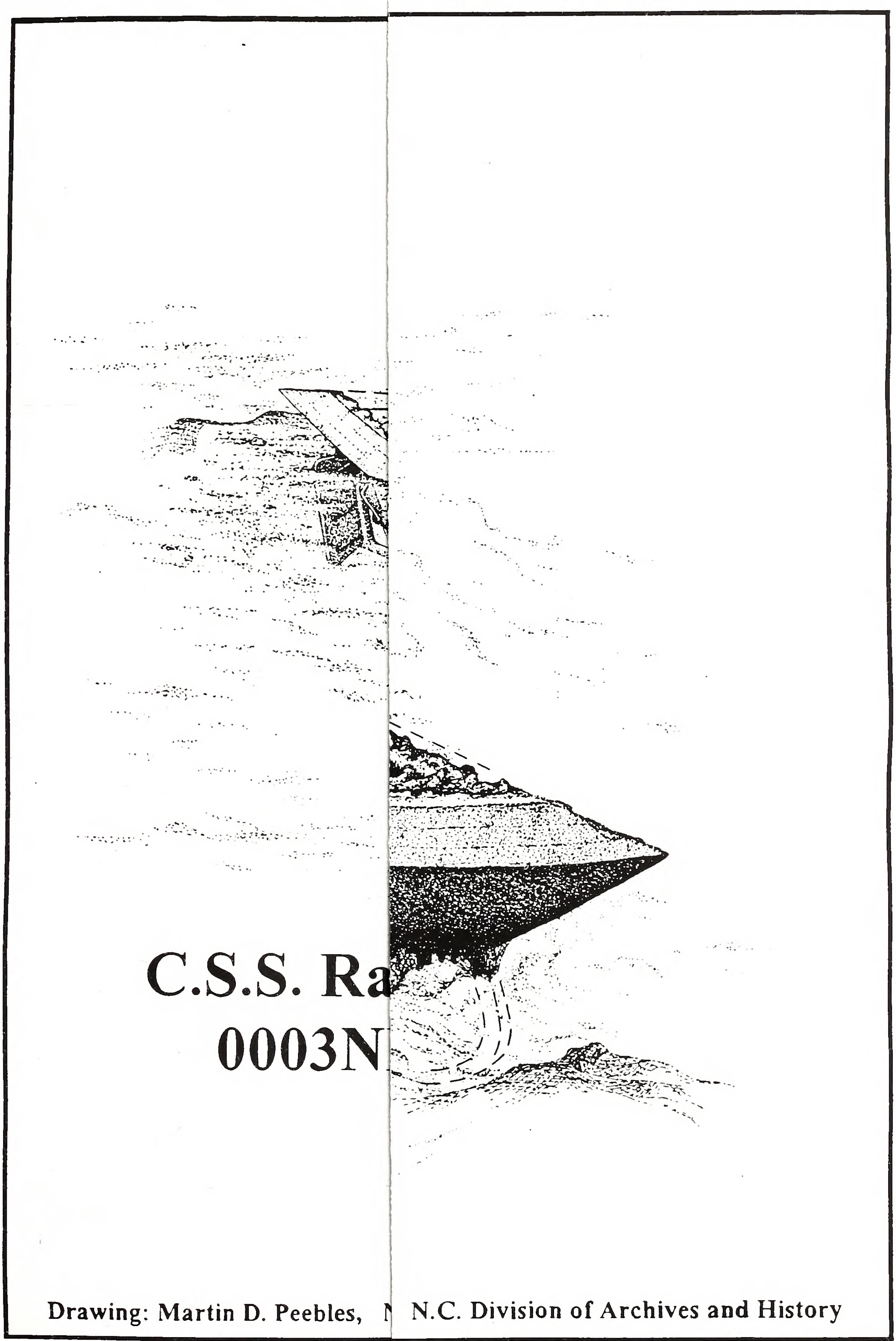

N.C. Division of Archives and History
Underwater Archaeology Unit
Drawing Title:
Known Shipwreck Sites: Reaves Point to Southport
Project:
Cape Fear River Comprehensive Survey
Legend:
Shipwreck Site
--- Channel
0
1 mile
N
W
E
S
Date: May 1994
Reaves Point
Sunny Point
Kure Beach
Governors Creek
Walden Creek
Snow's Marsh
Horseshoe Shoal
0003NEI
Federal Point
Zekes Island
Price's Creek
Southport (Smithville)
0082CFR
Cape Fear River
The Rocks
New Inlet (present)

Figure 71. Known Shipwreck Sites: Reaves Point to Southport.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0003N

Drawing: Martin D. Peebles, N.C. Division of Archives and History

Figure 72. CSS *Raleigh* Site (000

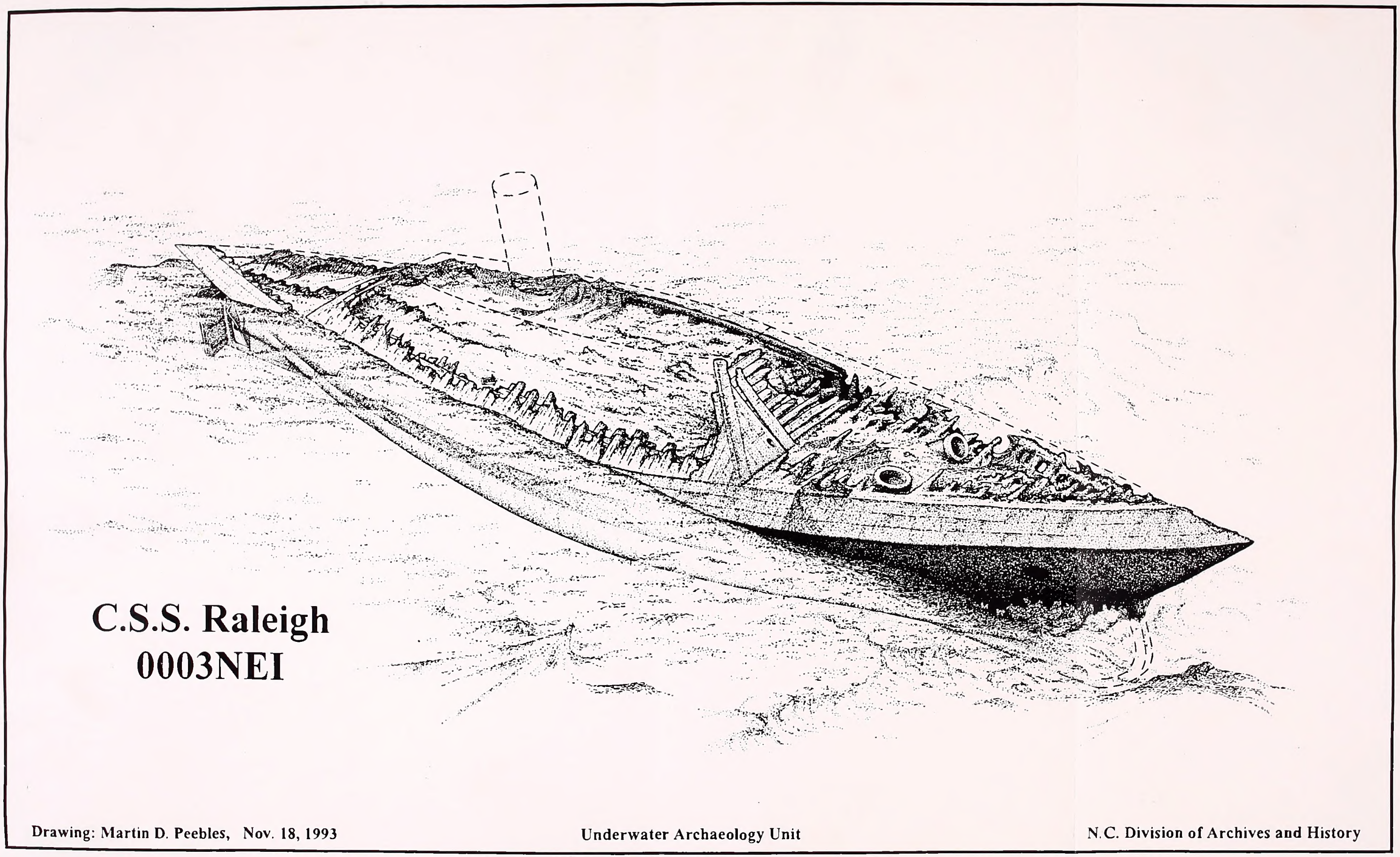

C.S.S. Raleigh
0003NEI
Drawing: Martin D. Peebles, Nov. 18, 1993
Underwater Archaeology Unit
N.C. Division of Archives and History

Figure 72. **CSS *Raleigh* Site (0003NEI).**

the bow. Forward of the rudder the top of one propeller blade was exposed 6 inches off the bottom surface. At 140 feet from the bow the end of the casemate was observed, but only 2 feet remained. An iron cylinder, roughly 2 feet in diameter, was located in the sand off the starboard midships section. The water depth at midships was 18 feet.

Thirty-seven feet aft of the bow the forward starboard section of the casemate was nearly intact. Forward of the casemate were two hawse pipes located on the deck at about the 24-foot mark. Fourteen feet aft of the bow additional hawse holes were recorded in the hull. Water depth was 25 feet to the top of the bow and 35 feet to the bottom under the bow.

Two artifacts were located on the *Raleigh* site—the upper and lower rudder pintles from a vessel that apparently struck the submerged ironclad. The lower pintle, artifact number 003NEI1, was located on the starboard side around the midships area of the wreck. The artifact was made of brass, with three copper pins. Traces of wood and yellow metal sheathing were identified on the pintle. The 3-inch-long pintle pin measured 2 inches in diameter. The entire pintle measured 18 inches in length, 9 inches in width, and 2½ inches in height.

The upper pintle, artifact number 003NEI2, was also located on the starboard side around the midships area of the wreck. The artifact was made of brass, with three copper pins. Traces of wood and yellow metal sheathing were identified on the strap. The 3-inch-long pintle measured 2 inches in diameter. The pintle measured 13 inches in length, 6½ inches in width, and 2 inches in height.

Site #0048 NER	**State Plane Coordinates**
Julep Barge	**2317700 E, 184480 N**
Target 12-A	

Target 12-A was a 62-foot 9-inch-long, 20-foot-wide wooden barge lying parallel to the shoreline approximately 300 yards north of the Isabel S. Holmes Bridge on the east bank of the Northeast Cape Fear River **(Figure 73)**. The vessel was edge fastened with ¾-inch drift pins, had a cross planked bottom, and contained three longitudinal stringers on each side of a center girder. The stringers were spaced on 2-foot 6-inch centers. The upriver end of the vessel had a pronounced rake, while the downriver end was only slightly raked. A few 3-inch by 10- inch deck planks were still intact and were supported by six 6-inch by 8-inch longitudinal deck beams, a center girder, and 6-inch by 6-inch stanchions. At a point 46 feet 8½ inches from the upriver end, a 2-foot-diameter round metal plate was fastened to the deck. The depth of hold was 3 feet 6 inches. The barge dated from the late nineteenth- to early twentieth-century period.

Site # 0093CFR
Confluence East Barge
Target 12-B

State Plane Coordinates
2315480 E, 179790 N

Target 12-B, a wooden barge, was found positioned perpendicular to the shoreline on the west bank of the Cape Fear River on Eagles Island, across from downtown Wilmington **(Figure 73)**. The sides of the 60-foot-long by 16-foot-wide barge were composed of 4-inch by 10-inch planks that were edge fastened with ¾-inch drift pins and supported by 1½-inch by 7-inch frames on 9½-foot centers. The flat bottom was cross planked and contained a single center girder along the longitudinal axis of the hull. The vessel was decked with 2-inch by 9-inch deck planks supported by 3½-inch by 3½-inch stanchions. The barge was raked on both ends and had a depth of hold of 4 feet. The barge was assigned to the late nineteenth- to early twentieth-century period.

Site # 0094CFR
Confluence West Barge
Target 12-C

State Plane Coordinates
2315450 E, 179810 N

Target 12-C, positioned perpendicular to the shoreline and next to Target 12-B, was a wooden barge located on the west bank of the Cape Fear River on Eagles Island, across from downtown Wilmington **(Figure 73)**. The 63-foot-long by 16-foot-wide barge was cross planked, framed with 9 by 5 inch frames on 15-foot centers, and raked on the offshore end. The side planks measured 3½ inches by 7½ inches and were edge fastened with ¾-inch iron drift pins. The drift pins were spaced on 18-inch centers along the side and on 3-foot centers along the center girder. Two stringers measuring 5 inches by 12 inches were spaced 2 feet 8 inches on each side of the center girder. A single piece of deadwood that supported the rake timber was located on the offshore end on the downriver stringer. The timber was symmetrical and measured 4 feet 9 inches long, 8 inches wide, 3 inches thick on each end, and 10 inches thick in the center. The barge was assigned to the late nineteenth- to early twentieth-century period.

Site # 0095CFR
Cape Fear Bridge East Barge
Target 12-D

State Plane Coordinates
2315330 E, 180000 N

Target 12-D, positioned perpendicular to the shoreline, was a wooden barge located on the west bank of the Cape Fear River at the confluence of the east and west branches of the Cape Fear River **(Figure 73)**. The exposed length of the barge measured 45 feet, and the beam measured 27 feet 9 inches. The sides, which were edge fastened with ¾-inch drift pins, were made up of three timbers. The bottom timber measured 6 inches thick and 10 inches high, and the middle and top timbers were 4 inches thick

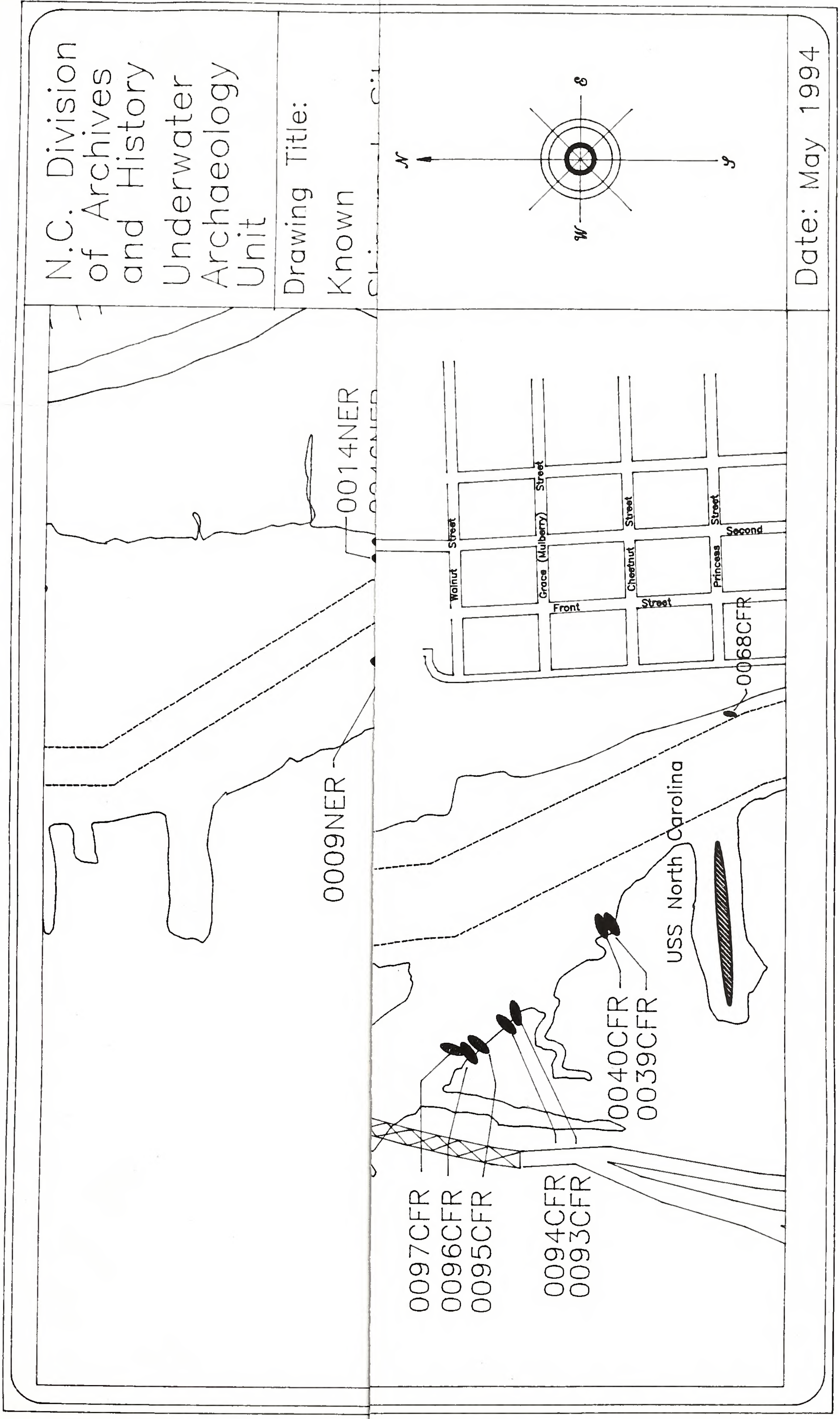

N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Known
Date: May 1994
N
S
E
W
0014NER
0009NER
Walnut Street
Grace (Mulberry) Street
Chestnut Street
Princess Street
Second
Front Street
0068CFR
USS North Carolina
0040CFR
0039CFR
0097CFR
0096CFR
0095CFR
0094CFR
0093CFR

Figure 73. Known Shipwrec

Site # 0093CFR
Confluence East Barge
Target 12-B

State Plane Coordinates
2315480 E, 179790 N

Target 12-B, a wooden barge, was found positioned perpendicular to the shoreline on the west bank of the Cape Fear River on Eagles Island, across from downtown Wilmington **(Figure 73)**. The sides of the 60-foot-long by 16-foot-wide barge were composed of 4-inch by 10-inch planks that were edge fastened with ¾-inch drift pins and supported by 1½-inch by 7-inch frames on 9½-foot centers. The flat bottom was cross planked and contained a single center girder along the longitudinal axis of the hull. The vessel was decked with 2-inch by 9-inch deck planks supported by 3½-inch by 3½-inch stanchions. The barge was raked on both ends and had a depth of hold of 4 feet. The barge was assigned to the late nineteenth- to early twentieth-century period.

Site # 0094CFR
Confluence West Barge
Target 12-C

State Plane Coordinates
2315450 E, 179810 N

Target 12-C, positioned perpendicular to the shoreline and next to Target 12-B, was a wooden barge located on the west bank of the Cape Fear River on Eagles Island, across from downtown Wilmington **(Figure 73)**. The 63-foot-long by 16-foot-wide barge was cross planked, framed with 9 by 5 inch frames on 15-foot centers, and raked on the offshore end. The side planks measured 3½ inches by 7½ inches and were edge fastened with ¾-inch iron drift pins. The drift pins were spaced on 18-inch centers along the side and on 3-foot centers along the center girder. Two stringers measuring 5 inches by 12 inches were spaced 2 feet 8 inches on each side of the center girder. A single piece of deadwood that supported the rake timber was located on the offshore end on the downriver stringer. The timber was symmetrical and measured 4 feet 9 inches long, 8 inches wide, 3 inches thick on each end, and 10 inches thick in the center. The barge was assigned to the late nineteenth- to early twentieth-century period.

Site # 0095CFR
Cape Fear Bridge East Barge
Target 12-D

State Plane Coordinates
2315330 E, 180000 N

Target 12-D, positioned perpendicular to the shoreline, was a wooden barge located on the west bank of the Cape Fear River at the confluence of the east and west branches of the Cape Fear River **(Figure 73)**. The exposed length of the barge measured 45 feet, and the beam measured 27 feet 9 inches. The sides, which were edge fastened with ¾-inch drift pins, were made up of three timbers. The bottom timber measured 6 inches thick and 10 inches high, and the middle and top timbers were 4 inches thick

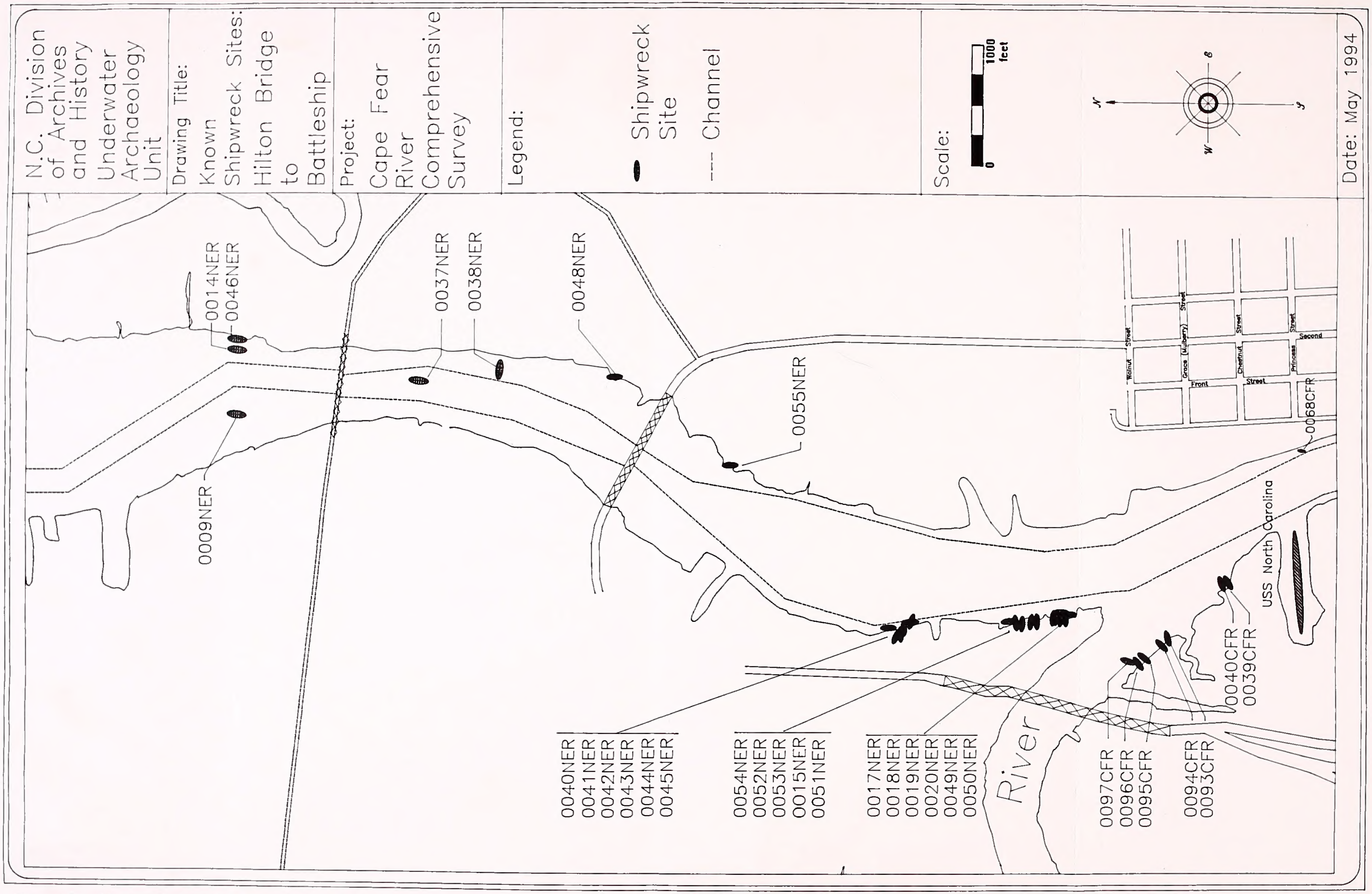

N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title: Known Shipwreck Sites: Hilton Bridge to Battleship
Project: Cape Fear River Comprehensive Survey
Legend:
Shipwreck Site
Channel
Scale:
0
1000 feet
N
S
E
W
Date: May 1994
0014NER
0046NER
0009NER
0037NER
0038NER
0048NER
0055NER
0068CFR
Walnut Street
Grace (Mulberry) Street
Chestnut Street
Princess Street
Second
Front Street
USS North Carolina
0040CFR
0039CFR
0040NER
0041NER
0042NER
0043NER
0044NER
0045NER
0054NER
0052NER
0053NER
0015NER
0051NER
0017NER
0018NER
0019NER
0020NER
0049NER
0050NER
River
0097CFR
0096CFR
0095CFR
0094CFR
0093CFR

Figure 73. Known Shipwreck Sites: Hilton Bridge to Battleship.

and 12 inches high. The configuration of the side timber actually created a chine log for added longitudinal strength. Two longitudinal stringers were located in the hull. The stringers were constructed in a fashion similar to the sides, with the bottom timber measuring 8 inches by 12 inches and the top timbers measuring 6 inches by 12 inches. The bottom of the barge was cross planked, and the offshore end of the barge was raked. Pilings were driven through the bottom of the hull, indicating that a dock or wharf structure was built sometime after the barge was abandoned. This barge dated to the late nineteenth- to early twentieth-century period.

Site # 0096CFR	**State Plane Coordinates**
Cape Fear Bridge West Barge	**2315280 E, 180020 N**
Target 12-E	

Target 12-E, positioned perpendicular to the shoreline and beside Target 12-D, was a wooden barge located on the west bank of the Cape Fear River **(Figure 73)**. The exposed portion of the barge was 51 feet long and had a beam of 16 feet. The sides were made up of three timbers, the bottom timber being 8 inches thick and 10 inches high and the middle and top timbers 6 inches thick and 12 inches high. The side planks were edge fastened with ¾-inch drift pins. No stringers were recorded, except for a single center girder that was constructed in the same fashion as the sides, with the bottom timber measuring 8 by 10 inches and the top pieces measuring 4 by 12 inches. The bottom of the barge was cross planked, and the vessel's offshore end was raked. Pilings were driven through the bottom of the hull, indicating a dock or wharf structure was built sometime after the barge was abandoned. This barge was assigned to the late nineteenth century.

Site # 0097CFR	**State Plane Coordinates**
Cape Fear Bridge Sunken Barge	**2315300 E, 180070 N**
Target 12-F	

Target 12-F, positioned just offshore of Target 12-E, was a wooden barge located near the west bank of the Cape Fear River **(Figure 73)**. Only one side and three stringers were exposed at low tide. The vessel was edge fastened with ¾-inch drift pins, cross planked and raked on at least one end. This barge dated to the late nineteenth- to early twentieth-century period.

Site # 0055NER
Dean's Hardwood Barge
Target 12-G

State Plane Coordinates
2316980 E, 183500 N

Target 12-G, positioned perpendicular to the shoreline, was a wooden barge located on the east bank of the Northeast Cape Fear River approximately 300 yards south of the Isabel S. Holmes Bridge **(Figure 73)**. The exposed length of the barge measured 53 feet, and the beam measured 23 feet. Two 5-inch-by-10-inch longitudinal stringers were located in the hull and were situated 9 feet from either side. The side planking measured 3 inches by 10 inches, while the chine log measured 6 inches by 10 inches. The side planking was edge fastened with ¾-inch drift pins. Eight 6-inch by 6-inch frames, fastened with 1-inch bolts, round washers, and square nuts, were recorded on 5-foot 6-inch centers. The barge had a cross planked bottom, a depth of hold of 4 feet 3 inches, and was raked on the inshore end and square on the offshore end. Pilings were driven between the barge and channel, indicating a dock or wharf structure was built sometime after the barge was abandoned. This barge was assigned to the late nineteenth- to early twentieth-century period.

Site # 0041NER
Winner Flat
Target 12-H

State Plane Coordinates
2315590 E, 182080 N

Target 12-H, located on the west bank of the Northeast Cape Fear River above Point Peter, was a small wooden flat, partially exposed above the sand bottom **(Figure 73)**. The flat measured 10 feet in length and 3 feet 6 inches in width. The vessel was cross planked with 9½ inch by ½ inch planks, fastened with brass clincher nails, and framed with 1½ inch by ½ frames on 2-foot 4-inch centers. A chine log measured ¾ inch by 3 inches. The remains of the side planks measured 10 inches high. The barge dated to the late nineteenth- to early twentieth-century period.

Site # 0042NER
Winner Barge # 1
Target 12-I

State Plane Coordinates
2315610 E, 182070 N

Target 12-I, located on the west bank of the Northeast Cape Fear River above Point Peter, were two longitudinal components of an edge-fastened barge **(Figure 73)**. A section of the chine log was observed on the upriver section of barge.

Site # 0043NER
Winner Barge # 2
Target 12-J

State Plane Coordinates
2315600 E, 182050 N

Target 12-J, located on the west bank of the Northeast Cape Fear River and beside Target 12-I, was the remains of a wooden barge that dated to the early twentieth century **(Figure 73)**. The exposed length of the barge measured 18 feet, and the beam was 20 feet. The side planking measured 3 inches by 12 inches, and the chine log measured 4 inches by 4 inches. The vessel was edge fastened with ¾-inch drift pins and 1-inch iron bolts with square nuts. The bottom of the barge was cross planked with 2-inch by 12-inch planking. Two 2½-inch by 8-inch stringers were positioned in the hull, 5 feet either side of the center girder.

Targets 12-K to 12-P were located on the Bordeaux Salvage and Construction Company property on Point Peter **(Figure 73)**. Because of time constraints, no measurements were recorded at these sites; only a brief description of the type of vessel was recorded.

Site # 0049NER
Derrick Barge
Target 12-K

State Plane Coordinates
2315710 E, 180700 N

Target 12-K, located on the shoreline at Point Peter, was a derrick barge positioned perpendicular to the channel **(Figure 73)**.

Site # 0050NER
Bordeaux Power Boat
Target 12-L

State Plane Coordinates
2315710 E, 180720 N

Target 12-L, located on the shoreline at Point Peter, was the remains of a wooden power vessel **(Figure 73)**. The machinery was salvaged from the vessel, and the only portions left were the hull remains, which consisted of a few frames and exterior planking.

Site # 0051NER
Bordeaux Small Wood Boat
Target 12-M

State Plane Coordinates
2315680 E, 180900 N

Target 12-M was an end of a wooden vessel partially exposed on the shoreline at Point Peter **(Figure 73)**. The only recognizable features of the craft were the single frames exposed approximately 6 inches above the bottom surface.

Site # 0053NER
Bordeaux Wood Boat II
Target 12-N

State Plane Coordinates
2315650 E, 181010 N

Target 12-N was the remains of a small wooden vessel that was apparently salvaged **(Figure 73)**. The only features observed were a few frames and some exterior planking. The remains were scattered beside a modern steel barge.

Site # 0052NER
Bordeaux Shaft Boat
Target 12-O

State Plane Coordinates
2315660 E, 181030 N

Target 12-O proved to be the remains of a small power vessel located beside Target 12-N **(Figure 73)**. A single propeller shaft was exposed among a pile of planking and small frames.

Site # 0054NER
Bordeaux Flat Boat
Target 12-P

State Plane Coordinates
2315660 E, 181070 N

Target 12-P was the remains of a wooden barge positioned parallel to the channel at Point Peter **(Figure 73)**. The bottom portion of the barge was all that remained with longitudinal planking on the bottom and athwartship planking on the top. Three impressions of stringers were recorded on the top planking, on the downriver end of the barge, as were two chine logs, which were all that remained of the sides. The badly deteriorated upriver end could not be identified, but the downriver end showed evidence of having been raked.

Table 2-1.

Documented Sites in the Lower Cape Fear River

Site Number	Previous/New Site	National Register Listing	Potential Threat	Site Name	Vessel Type*
CAPE FEAR RIVER					
0001CFR	Previous	Yes	Low	*Waccamaw*	P
0002CFR	Previous	Yes	High	*Blanchard*	Y,Sd
0003CFR	Previous	Yes	High	*A. P. Hurt*	W
0004CFR	Previous	Yes	Low	Barge #1	B
0005CFR	Previous	Yes	Low	Barge #2	B
0006CFR	Previous	Yes	Low	Bulkhead Tugboat	T,S
0007CFR	Previous	Yes	Low	Barge #3	B
0008CFR	Previous	Yes	Low	Barge #4	B
0009CFR	Previous	Yes	Low	Steam Crane Barge #1	B
0010CFR	Previous	Yes	Low	*Stone 5*	T,Sd
0011CFR	Previous	Yes	Low	*Dolphin*	T,Ss
0012CFR	Previous	Yes	Low	*Stone 6*	T,Sd
0013CFR	Previous	Yes	Low	*Minnesota*	R,Sd
0014CFR	Previous	Yes	Low	*Stone 3*	T,Sd
0015CFR	Previous	Yes	Low	*Argonauta*	T,Ss
0016CFR	Previous	Yes	High	*John Knox*	Fd
0017CFR	Previous	Yes	Low	Eagles Island Skiff #1	Skiff
0018CFR	Previous	Yes	Low	Last One Wreck	Unk
0019CFR	Previous	Yes	Low	Eagles Island Launch	Launch
0020CFR	Previous	Yes	Low	Bulkhead Barge	B
0021CFR	Previous	Yes	Low	Stone Dry Dock/Railway	Dock
0022CFR	Previous	Yes	Medium	Skinners Dock Wreck	Launch
0023CFR	Previous	No	Low	*Lucretia*	B
0024CFR	Previous	Yes	Low	Sanded Barge	B
0025CFR	Previous	Yes	Low	Little Barge	B
0026CFR	Previous	Yes	Low	Government Barge	B
0027CFR	Previous	Yes	Low	*H. G. Wright*	W
0028CFR	Previous	Yes	Low	*Stone 4*	T,Sd
0029CFR	Previous	Yes	Low	Iron Rudder Wreck	Unk
0030CFR	Previous	Yes	Low	Splayed Wreck	Unk
0031CFR	Previous	Yes	Low	*Argonauta* Barge	B
0032CFR	Previous	Yes	Low	Wright Barge	B
0033CFR	Previous	Yes	Low	*Cherokee*	Launch
0034CFR	Previous	Yes	Low	Eagles Island Skiff #2	Skiff
0035CFR	Previous	No	Low	*Seven Marys*	R,Sd
0036CFR	Previous	No	Low	*Bostic*	T,Sd
0037CFR	Previous	No	Low	*Stone 1*	T,Ss
0038CFR	New	No	Low	NOAA #4 Barge	B
0039CFR	Previous	Yes	Low	South Battleship Barge	B
0040CFR	Previous	Yes	Low	North Battleship Barge	B
0041CFR	Previous	Yes	Low	Intact Tug	T,Sd
0042CFR	Previous	Yes	Low	Steam Crane Barge #2	B
0052CFR	New	No	Low	CSS *North Carolina*	Ironclad

Documented Sites in the Lower Cape Fear
Table 2-1.
PAGE 2

Site Number	Previous/New Site	National Register Listing	Potential Threat	Site Name	Vessel Type*
CAPE FEAR RIVER					
0062CFR	Previous	No	Low	Workboat #2	Launch
0063CFR	Previous	No	High	Work Barge	B
0068CFR	Previous	No	High	Walker Barge	B
0075CFR	Previous	No	Low	Sugarloaf Wreck	Sharpie
0078CFR	New	No	Low	Compressor Barge	B
0081CFR	New	No	Low	*Belfast*	B,Sch
0082CFR	New	No	Medium	*Kate*	BR,P
0083CFR	New	No	Low	Campbell Island Wreck	B
0084CFR	New	No	Medium	Fort Caswell Steamer	s
0085CFR	New	No	Low	Battery Island Boiler	-
0086CFR	New	No	Low	Brunswick Town Barge	B
0087CFR	New	No	Low	Snow's Marsh Training Dike	
0088CFR	New	No	Low	Eagles Island Metal Barge	B
0089CFR	New	No	Low	Eagles Island Wood Barge	B
0090CFR	New	No	Low	Innis Barge	B
0091CFR	New	No	Low	Floating Tank Barge	B
0092CFR	New	No	Low	Dawson Street Barge	B
0093CFR	New	No	Low	Confluence East Barge	B
0094CFR	New	No	Low	Confluence West Barge	B
0095CFR	New	No	Low	CF Bridge East Barge	B
0096CFR	New	No	Low	CF Bridge West Barge	B
0097CFR	New	No	Low	CF Bridge Sunken Barge	B
0099CFR	New	No	Low	CF Terminal North	B
0100CFR	New	No	Low	CF Terminal Big Barge	B
0101CFR	New	No	Low	Cape Fear Terminal South	B
NEW INLET					
0003NEI	New	Yes	Low	CSS *Raleigh*	Ironclad

Table 2-2.

Documented Sites in the Northeast Cape Fear River

Site Number	Previous/New Site	National Register Listing	Potential Threat	Site Name	Vessel Type*
NORTHEAST CAPE FEAR					
0009NER	Previous	No	Medium	*Spray*	P
0014NER	Previous	No	Low	Dixie Crystal Barge	B
0015NER	Previous	No	Low	Bordeaux Wreck	Unk
0017NER	Previous	No	Low	Bordeaux Barge	B
0018NER	Previous	No	Low	Bordeaux Tug	T,Sd
0019NER	Previous	No	Low	*Alma*	T,S
0020NER	Previous	No	Low	*Carl Blades*	T,S
0037NER	Previous	Yes	High	Hilton Schooner	Sch
0038NER	Previous	No	Low	Modern Steel Barge	B
0040NER	Previous	No	Low	Winner Skiff	Skiff
0041NER	New	No	Low	Winner Flat	B
0042NER	New	No	Low	Winner Barge #1	B
0043NER	New	No	Low	Winner Barge #2	B
0044NER	Previous	No	Low	Winner CB Wreck	Sch
0045NER	Previous	No	Low	Token Wreck	Launch
0046NER	Previous	No	Low	ChemServe Boat	Launch
0047NER	New	No	Low	Smith Creek Barge	B
0048NER	New	No	Low	Julep Barge	B
0049NER	New	No	Low	Derrick Barge	B
0050NER	New	No	Low	Bordeaux Powerboat	Launch
0051NER	New	No	Low	Bordeaux Wood Boat	Skiff
0052NER	New	No	Low	Bordeaux Shaft Boat	Launch
0053NER	New	No	Low	Bordeaux Wood Boat #2	Launch
0054NER	New	No	Low	Bordeaux Flat Barge	B
0055NER	New	No	Low	Dean's Hardwood Barge	B

* CODES

B -	Barge
BR-	Blockade Runner
F -	Ferry
R -	Fishing
Sch -	Schooner
T -	Tug
Unk -	Unknown
Y -	Yacht
S -	Screw
P -	Sidewheel
W -	Sternwheel
d -	diesel
s -	steam

Description of Previously Documented Sites

CAPE FEAR RIVER

UAU Site # 0001CFR	**State Plane Coordinates**
Waccamaw	**2316404 E, 176060 N**

The Underwater Archaeology Unit (UAU) documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

This site was the remaining portions of a mid-nineteenth-century sidewheel steamboat, 128 feet in length with a 28-foot beam **(Figure 75)**. A 1924 aerial photograph of the Cape Fear River showed the wreck in a high state of deterioration, covered with a thick growth of vegetation, indicating that it had already been abandoned for a long period at that time.

A 1989 investigation of this site identified the wreck as the steamboat *Waccamaw*, which had burned while moored along Eagles Island in 1886. Originally named the *Nuestra Senora de Regla*, the ship was built in 1861 in New York City as a ferryboat to operate in Havana, Cuba. On its maiden voyage it was captured, reportedly as a blockade-runner, sold, and converted into a Union gunboat and renamed the *Commodore Hull*. From 1862 to 1865 it played an active part in the Albemarle campaign in the sounds of North Carolina. After the war, the steamer was renamed the *Waccamaw* and continued as a passenger and freight carrier, and later as a wrecking vessel on the Cape Fear River until it burned and sank in 1886.

The shipwreck was oriented parallel to the river, with the bow to the south. Most of the vessel's hull had survived and was almost entirely buried in the mud. In addition, the remains of a plug-stock rudder, the sidewheels, and a horizontal fire-tube boiler were still present at the site. The spokes of the paddle wheel and the exposed portion of the boiler had been cut off and removed from the site sometime after the 1924 photograph. Portions of the paddlewheel shaft support timbers and the inclined engine bed timbers were also present, protruding out of the mud in the amidships area.

UAU Site # 0002CFR	**State Plane Coordinates**
Blanchard	**2317419 E, 177407 N**

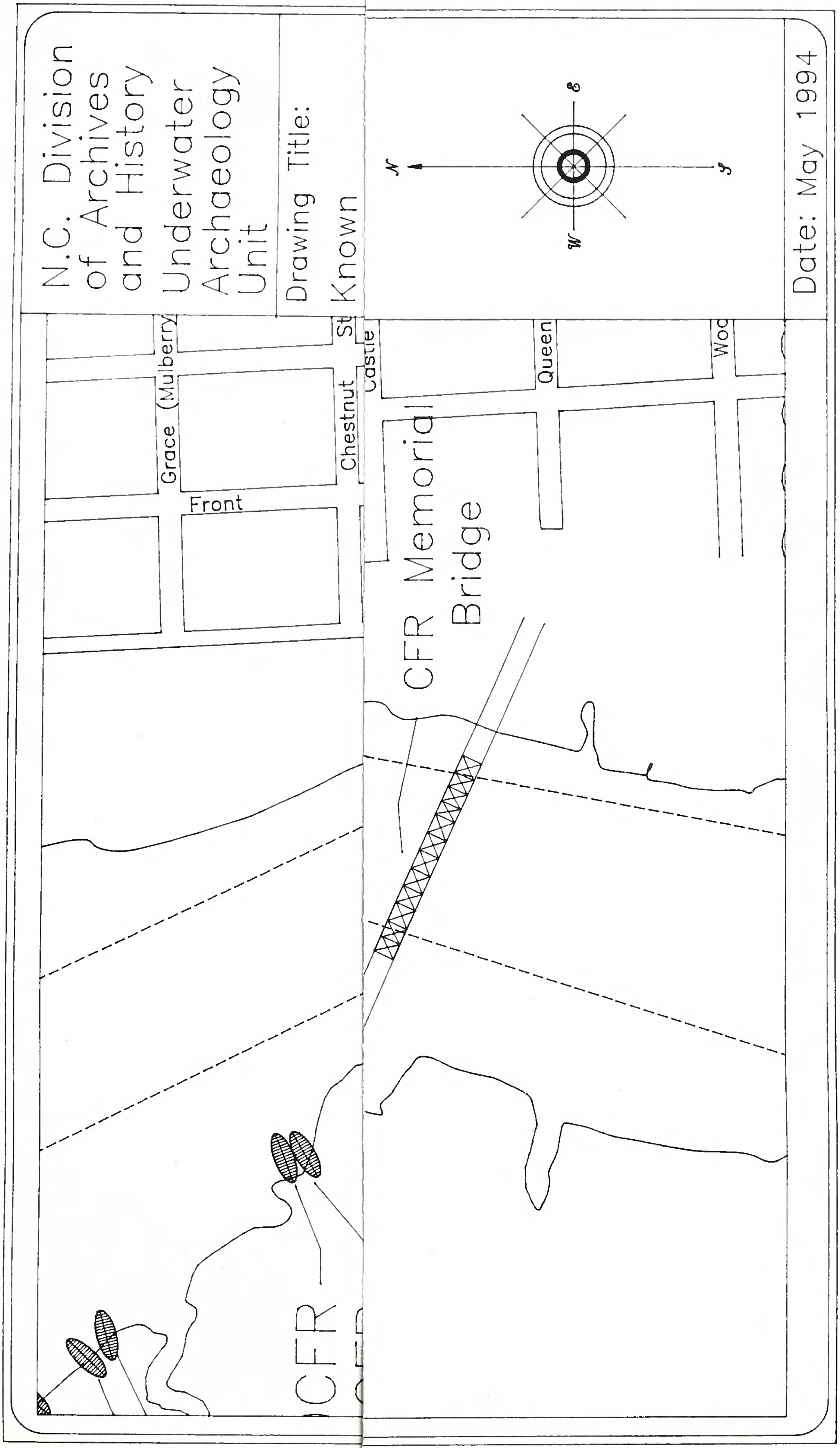
This site was reported to the UAU by local divers in 1982 as the remains of the *A. P. Hurt* (see site 0003CFR). Although the location of this wreck, at the foot of Orange Street, corresponded with the generally reported location for the *A. P. Hurt*, an examination of the site revealed that this was not the remains of the mid-nineteenth century sternwheel steamboat **(Figure 74)**. Eventually divers discovered the *A. P. Hurt* 100 feet north of the *Blanchard*. According to Donald Bordeaux of Bordeaux Salvage and Construction Company, this wreck was a steel-hull vessel named the *Blanchard*. The *Blanchard* was built in Wilmington, Delaware, by Pusey and Jones in 1910. Originally named *Alacrity*, the vessel was designed by the New York marine architectural firm of Cox and Stevens for use as a gasoline-powered yacht. The *Alacrity* moved from Wilmington, Delaware, to Chicago, Illinois, in 1926, and in 1935 the new owners renamed the vessel *Nedra B*. In 1942 the Coast Guard Reserve commissioned the vessel as *CGR 106* and assigned it to the Cleveland District. On November 3, 1942, the Coast Guard acquired the vessel, renamed it the *Blanchard*, and assigned the vessel to Key West, Florida. After World War II, the Coast Guard decommissioned the *Blanchard*, and it was bought by Buck Bordeaux (Donald Bordeaux's uncle) in Bucksport, South Carolina, who brought it to Wilmington, North Carolina. According to Donald Bordeaux, sometime in the early 1950s, after his uncle had sold the *Blanchard* to Tom Eagleson, it was undergoing repairs at Wilmington Iron Works at the foot of Orange Street when a northwest gale caused the vessel to sink.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The 115-foot-by-18-foot steel-hull vessel was found to lie on its port side, the bow upstream, in 15 to 20 feet of water. The superstructure was no longer present at the site, and the engines, propeller shafts, and propellers had been removed. The after half of the vessel was still decked. A number of portholes and small brass fittings had reportedly been removed from the wreck by local divers.

UAU Site # 0003CFR	**State Plane Coordinates**
A. P. Hurt	**2317391 E, 177609 N**

The *A. P. Hurt* was an iron-hull sternwheel steamboat built in Wilmington, Delaware, in 1860 by the Pusey & Jones Company for the Cape Fear Steamboat Company. The vessel came to Wilmington, North Carolina, in 1860 and operated on the Cape Fear River, primarily between Wilmington and Fayetteville, until 1923 **(Figure 76)**. During the Civil War the Confederacy used the *A. P. Hurt* as a transport until it was eventually captured by Union forces. In 1913 the vessel caught fire and was partially burned. After the vessel was rebuilt, the owners changed the name of the steamboat to the *C. W. Lyon*. The steamer caught fire again in 1915. After being refurbished and renamed, the *A. P. Hurt* was again put into service on the river. On March 6, 1923, the *A. P. Hurt*, loaded with fertilizer and general merchandise, sank at City Market Wharf during a severe gale. Several newspaper accounts from the 1930s and 1940s state that the *A. P. Hurt* was the first vessel to be built with steel plates in the United States.


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
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Date: May 1994
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CFR Memorial Bridge
CFR

Figure 74. Known Shipwrec

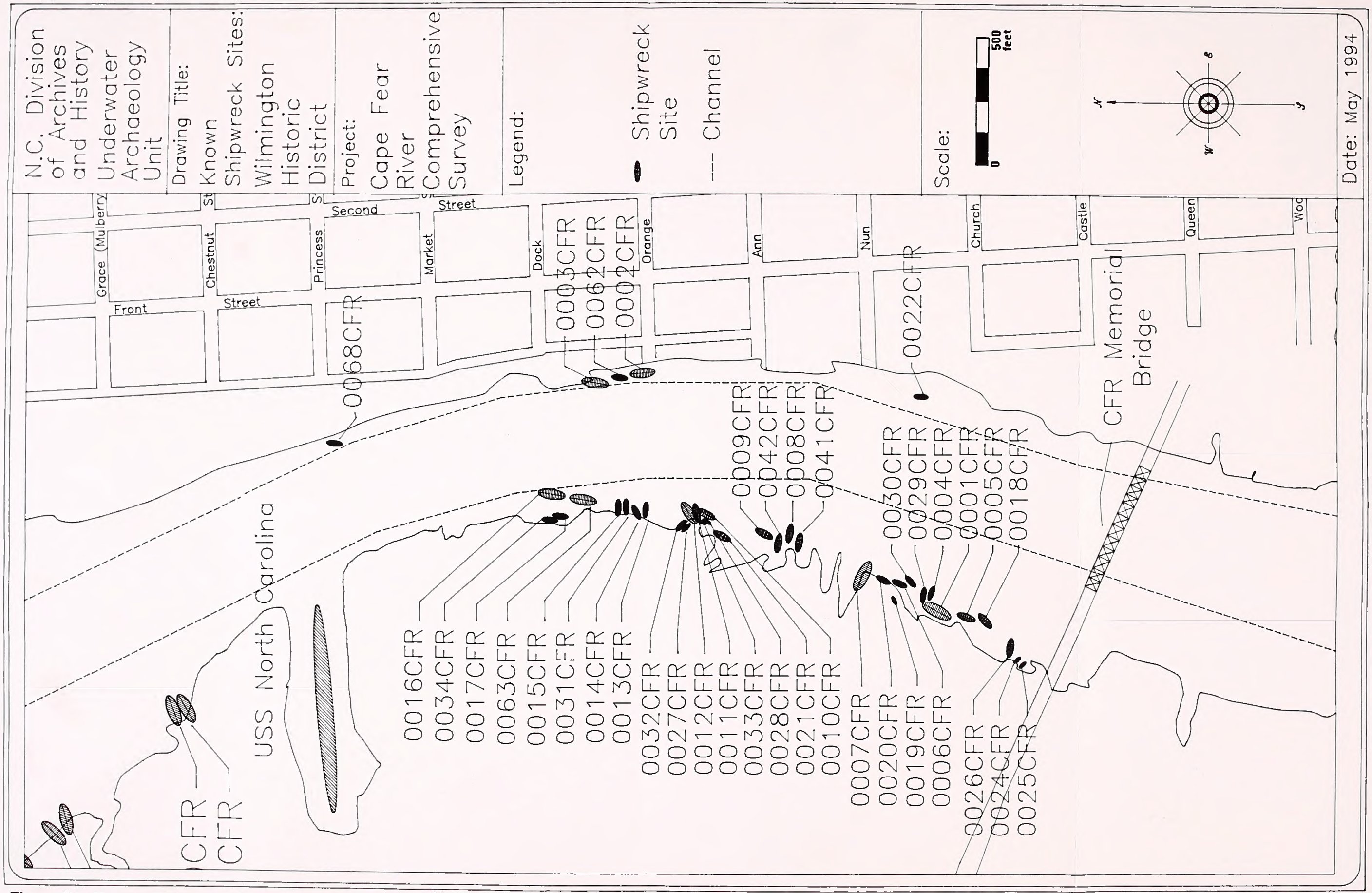
examination of the site revealed that this was not the remains of the mid-nineteenth century sternwheel steamboat **(Figure 74)**. Eventually divers discovered the *A. P. Hurt* 100 feet north of the *Blanchard*. According to Donald Bordeaux of Bordeaux Salvage and Construction Company, this wreck was a steel-hull vessel named the *Blanchard*. The *Blanchard* was built in Wilmington, Delaware, by Pusey and Jones in 1910. Originally named *Alacrity*, the vessel was designed by the New York marine architectural firm of Cox and Stevens for use as a gasoline-powered yacht. The *Alacrity* moved from Wilmington, Delaware, to Chicago, Illinois, in 1926, and in 1935 the new owners renamed the vessel *Nedra B*. In 1942 the Coast Guard Reserve commissioned the vessel as *CGR 106* and assigned it to the Cleveland District. On November 3, 1942, the Coast Guard acquired the vessel, renamed it the *Blanchard*, and assigned the vessel to Key West, Florida. After World War II, the Coast Guard decommissioned the *Blanchard*, and it was bought by Buck Bordeaux (Donald Bordeaux's uncle) in Bucksport, South Carolina, who brought it to Wilmington, North Carolina. According to Donald Bordeaux, sometime in the early 1950s, after his uncle had sold the *Blanchard* to Tom Eagleson, it was undergoing repairs at Wilmington Iron Works at the foot of Orange Street when a northwest gale caused the vessel to sink.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The 115-foot-by-18-foot steel-hull vessel was found to lie on its port side, the bow upstream, in 15 to 20 feet of water. The superstructure was no longer present at the site, and the engines, propeller shafts, and propellers had been removed. The after half of the vessel was still decked. A number of portholes and small brass fittings had reportedly been removed from the wreck by local divers.

UAU Site # 0003CFR	**State Plane Coordinates**
A. P. Hurt	**2317391 E, 177609 N**

The *A. P. Hurt* was an iron-hull sternwheel steamboat built in Wilmington, Delaware, in 1860 by the Pusey & Jones Company for the Cape Fear Steamboat Company. The vessel came to Wilmington, North Carolina, in 1860 and operated on the Cape Fear River, primarily between Wilmington and Fayetteville, until 1923 **(Figure 76)**. During the Civil War the Confederacy used the *A. P. Hurt* as a transport until it was eventually captured by Union forces. In 1913 the vessel caught fire and was partially burned. After the vessel was rebuilt, the owners changed the name of the steamboat to the *C. W. Lyon*. The steamer caught fire again in 1915. After being refurbished and renamed, the *A. P. Hurt* was again put into service on the river. On March 6, 1923, the *A. P. Hurt*, loaded with fertilizer and general merchandise, sank at City Market Wharf during a severe gale. Several newspaper accounts from the 1930s and 1940s state that the *A. P. Hurt* was the first vessel to be built with steel plates in the United States.


N.C. Division of Archives and History Underwater Archaeology Unit
Drawing Title:
Known Shipwreck Sites: Wilmington Historic District
Project:
Cape Fear River Comprehensive Survey
Legend:
Shipwreck Site
Channel
Scale:
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0002CFR
0022CFR
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Figure 74. Known Shipwreck Sites: Wilmington Historic District.

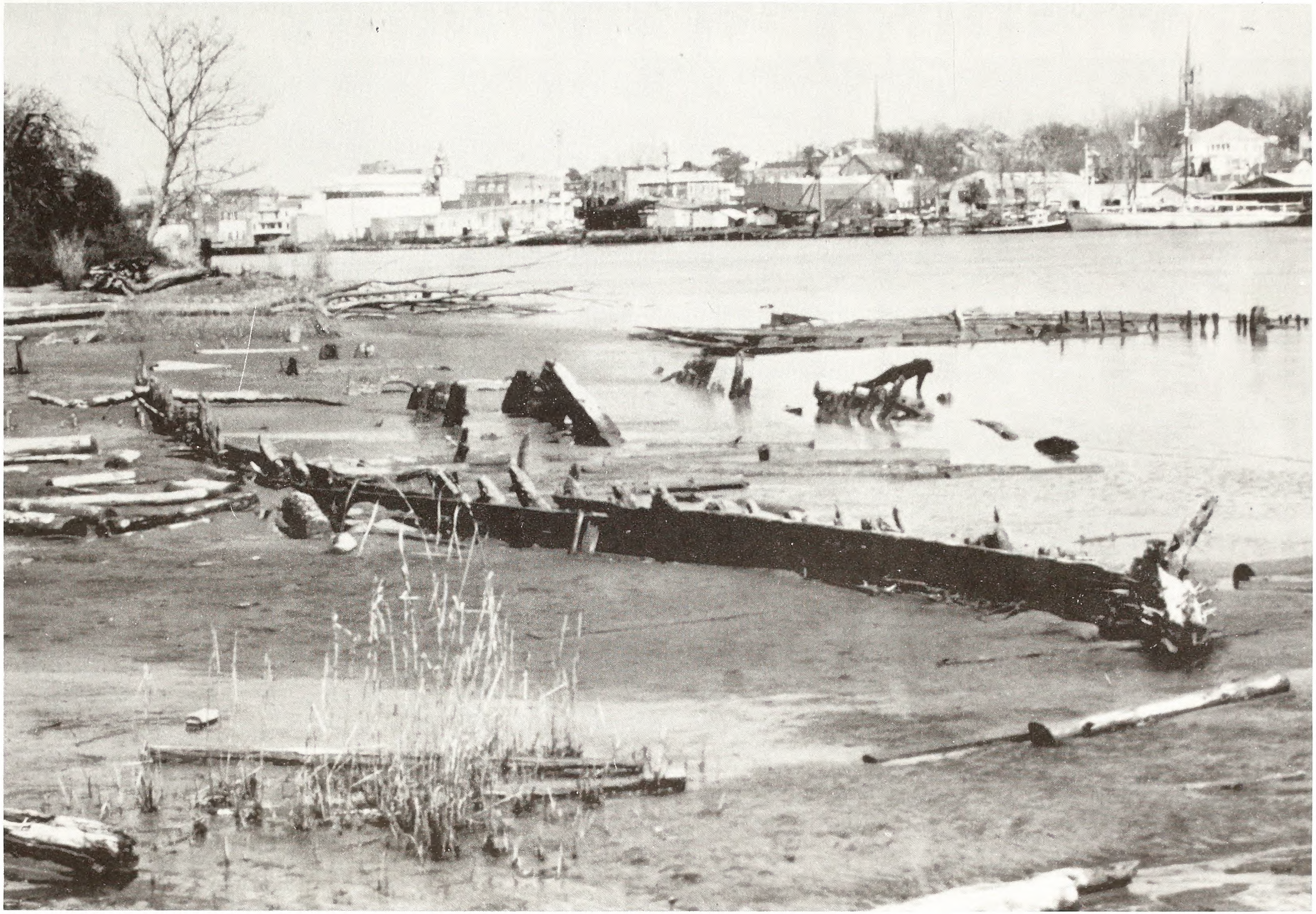


Figure 75. The *Waccamaw* (0001CFR) exposed at low tide looking north, showing the bow, machinery timbers, and remains of sidewheels and boiler.

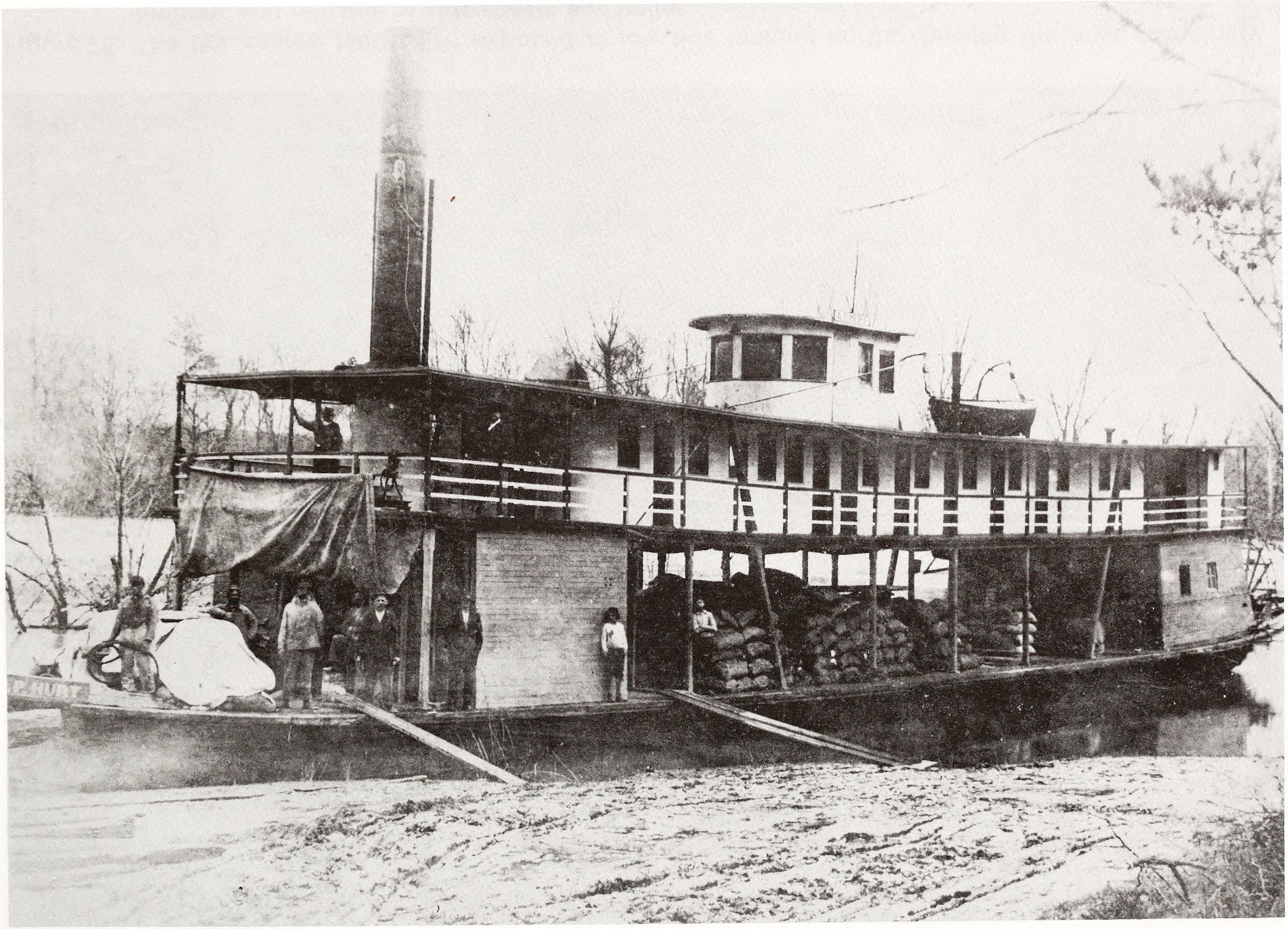


Figure 76. The iron hull steamboat *A. P. Hurt* operated on the Cape Fear River from 1860 to 1923.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The remains of the *A. P. Hurt* were submerged in 20 feet of water between Dock and Orange Streets with the bow pointing to the north **(Figure 77)**. The superstructure reportedly broke away when the vessel sank and was no longer present at the site. The metal hull was virtually intact with the starboard or nearshore side completely buried and the port side exposed approximately 4 feet above the river bottom. The overhanging deck beams remained in place, and decking was still intact near the bow and stern. Much of the interior of the hull was filled with sediment and modern debris. A horizontal boiler was still in place near the bow and two horizontal, high-pressure, slide-valve, steam engines with an 11-inch bore and 42-inch stroke were mounted on either side of the square stern. The piston rods, connecting rods, and paddlewheel shaft and rims were also present. The displaced smokestack was lodged against the paddle wheel.

UAU Site # 0004CFR	**State Plane Coordinates**
Barge #1	**2316481 E, 176154 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

This 72-foot-by-15-foot, wooden, rectangular barge was partially buried in the mud but exposed at low tide. The hull planking was edge fastened with iron driftpins and both ends were raked. A longitudinal bulkhead ran down the center of the barge and numerous stanchions were located in the afterpart of the hull, indicating that at least this end of the barge was originally decked. No decking was left at the site, and the sides and bulkhead had fallen over. The wreck rested perpendicular to the river, just south of Hamme Marine Railway on Eagles Island.

UAU Site # 0005CFR	**State Plane Coordinates**
Barge #2	**2316395 E, 175958 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

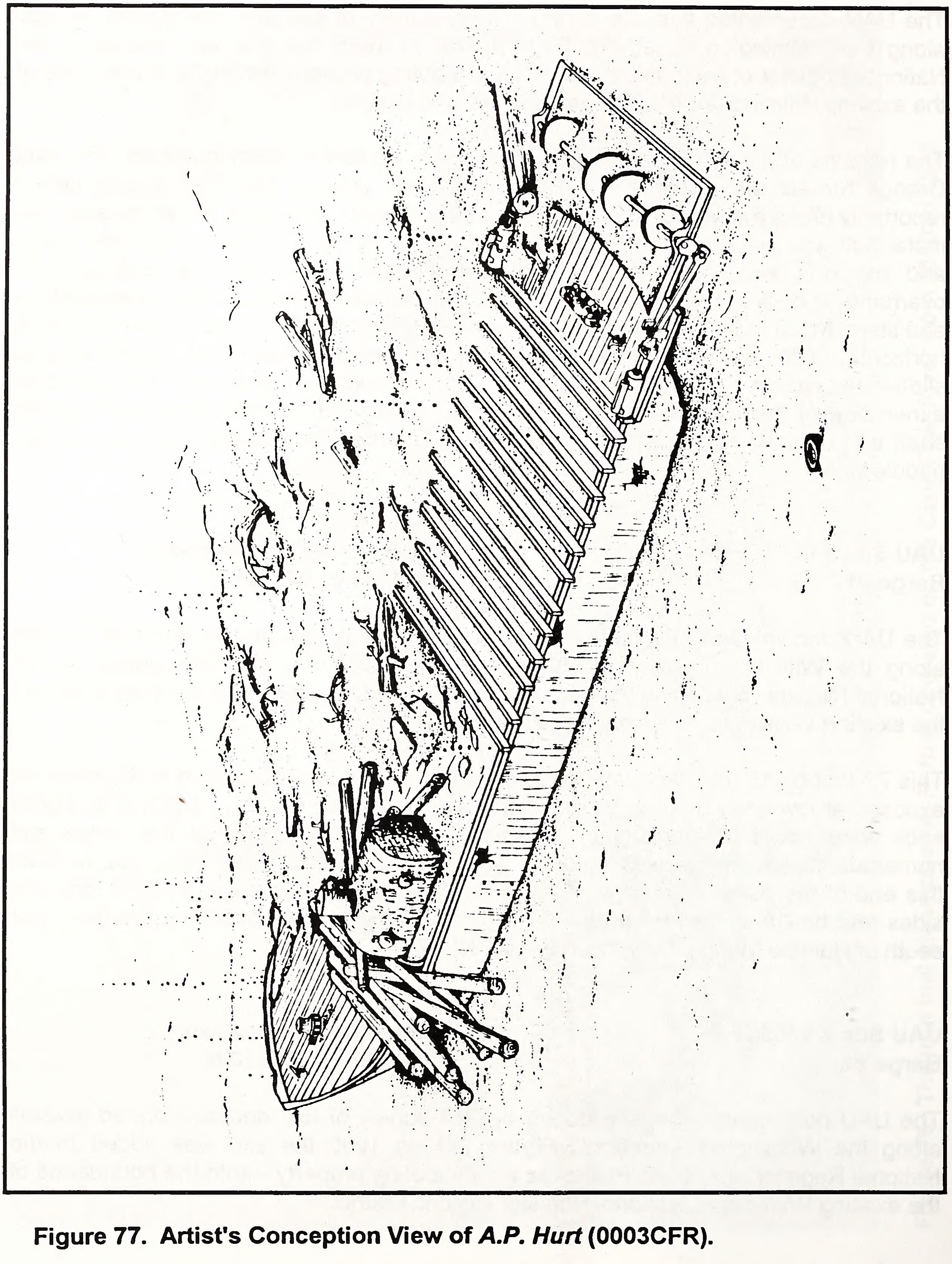


Figure 77. Artist's Conception View of *A.P. Hurt* (0003CFR).

Located on Eagles Island south of the Hamme Marine Railway, the abandoned remains of this barge could be seen in a 1924 aerial photograph. The 84½-foot-by-24½-foot rectangular wooden barge was divided into four compartments. The bottom of these compartments was designed to open for use as a hopper barge. This type of barge was used in dredging operations in which the hull was filled with dredge spoil. The barge was then towed to the disposal area where the bottom opened to discharge the spoil. The ends of the barge were raked, and the hull is heavily constructed.

UAU Site # 0006CFR	**State Plane Coordinates**
Bulkhead Tugboat	**2316560 E, 176308 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The remains of this approximately 50-foot-by-13-foot vessel were intact up to the gunnel and were partially buried in the mud, parallel to the river, with the bow to the north. The site was located just south of the Hamme Marine Railway, and the hull was entirely filled with brick and other rubble. The presence of wooden pilings along the starboard side, between the boat and the river, and the rubble-filled hull indicated that the vessel was intentionally placed in this location to serve as a bulkhead.

Although it was not possible to examine the interior of the hull and determine the type of propulsion or possible vessel use, the heavy construction of the vessel was similar to that used for tugboats.

UAU Site # 0007CFR	**State Plane Coordinates**
Barge #3	**2316639 E, 176396 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

This large 133½-foot-by-32½-foot hopper barge was located at the Hamme Marine Railway on Eagles Island. The barge had been placed along the railway berth to form a bulkhead with pilings driven in along the side to keep it in place. The barge had raked ends, five 15-foot-by-28-foot hopper compartments and was heavily constructed. The barge was shown in its present location in a 1924 aerial photograph, indicating that it was used as a hopper barge during the late-nineteenth or early-twentieth century.

UAU Site # 0008CFR	**State Plane Coordinates**
Barge #4	**2316757 E, 176734 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The site, located between the Stone and Hamme Marine Railways on Eagles Island, was a rectangular, frame-and-plank constructed, wooden barge. Athwartship deck beams were still present, but no decking remained on the barge. The barge was perpendicular to the river and exposed at low tide. The west end of the barge was raked, and the east end was plumb.

UAU Site # 0009CFR	**State Plane Coordinates**
Steam Crane Barge #1	**2316755 E, 176842 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

This 60-foot-by-20-foot rectangular barge was located just south of the Stone Marine Railway on Eagles Island. The relatively intact barge contained a vertical fire-tube boiler and a geared, cable windlass assembly, powered by two small horizontal steam engines **(Figure 78)**. According to Donald Bordeaux of Bordeaux Salvage and Construction Company, this barge was used in the 1920s and 1930s as a pile driver. The crane boom was missing from the site.

The sides of the barge were constructed of frames with inner and outer hull planking, and three longitudinal truss-type bulkheads ran the length of the hull. The north end of the barge was raked, and the south end was plumb. At high tide the entire barge, except for the boiler and windlass assembly, was underwater.

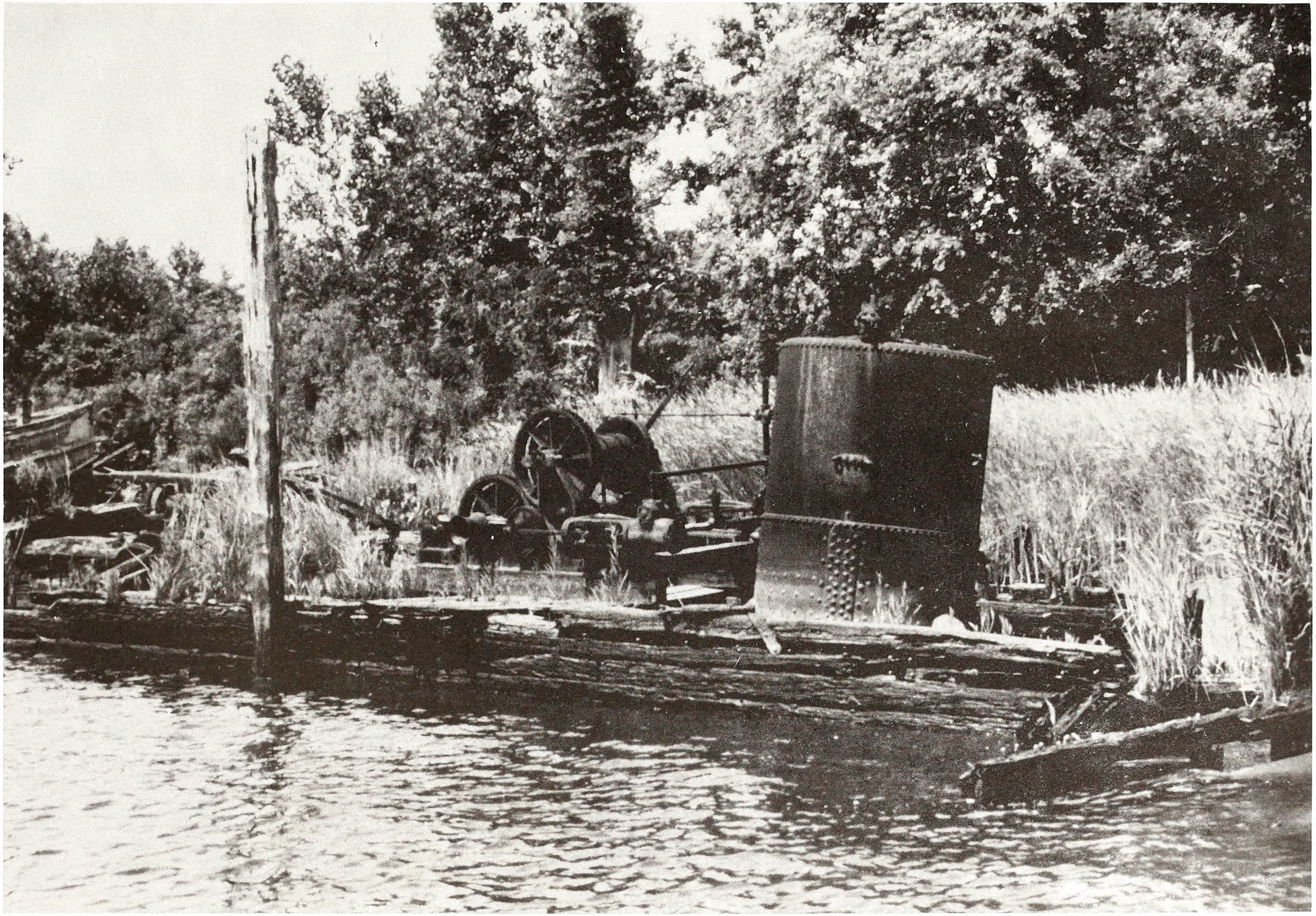


Figure 78. The Steam Crane Barge #1 (0009CFR) looking west, showing the vertical fire tube boiler, one of two horizontal steam engines, and the windlass assembly.

UAU Site # 0010CFR	**State Plane Coordinates**
Stone 5	**2316816 E, 177047 N**

This boat, originally named the *Sadie E. Culver*, was built in Whitehaven, Maryland, as a wooden-hull, 35-ton schooner in 1896. Sometime prior to 1919, the vessel was converted to a diesel-powered, screw-propelled fishing boat and operated out of Beaufort, North Carolina. By 1930 the *Sadie E. Culver* had come to Wilmington and was used as a fishing boat by the J. W. Thompson Company of Southport, North Carolina. In the 1930s R. R. Stone purchased the boat for use as a tugboat on the Cape Fear River and renamed it the *Stone 5*.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The abandoned remains of the *Stone 5* were located at the now inoperative Stone Marine Railway on Eagles Island **(Figure 79)**. Although the wheelhouse of the *Stone 5* had collapsed, the lower hull was relatively intact. A four-cylinder Fairbanks-Morse diesel engine, fuel tanks, towing bitts, rudder and various fittings remained in place and were visible at low tide. The vessel had a length of 80 feet and a beam of 22 feet.

UAU Site # 0011CFR	**State Plane Coordinates**
Dolphin	**2316812 E, 177117 N**

The *Dolphin* was built in 1896 in Brooklyn, New York, as a wooden-hull, screw steamboat. It is not known when the vessel began operation on the Cape Fear River.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The remains of the *Dolphin* were located at the Stone Marine Railway on Eagles Island. The vessel was 70 feet long and had a beam of 18 feet. The wheelhouse had collapsed, but the hull of the vessel was relatively intact. A vertical fire-tube boiler remained in place, although the stack had broken off and was lying on the deck. The well-preserved two-cylinder steeple steam engine was still mounted in the vessel. Most of the site was visible at low tide.

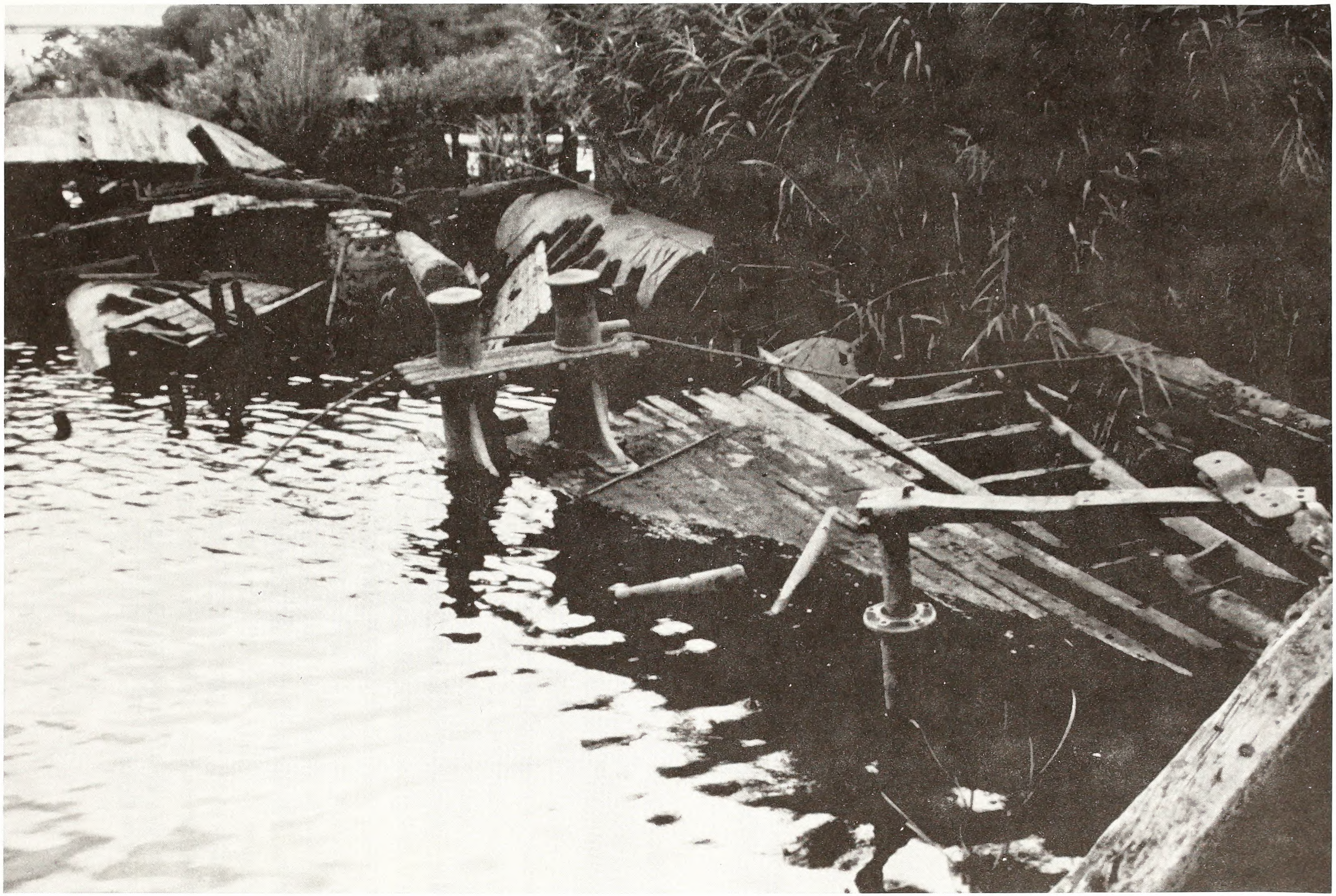


Figure 79. The tugboat *Stone 5* (0010CFR) was originally the *Sadie E. Culver*, a 35-ton schooner built in Whitehaven, Maryland, in 1896. This view shows the rudder post, towing bitts, 4-cylinder diesel engine, fuel tanks, and collapsed wheel house.

UAU Site # 0012CFR	**State Plane Coordinates**
Stone 6	**2316795 E, 177132 N**

Originally named the *Atlantic City*, this vessel was built in Newark, New Jersey, in 1890 as a screw steamboat and by 1904 was operating out of Charleston, South Carolina. Sometime prior to 1919, the *Atlantic City* came to Wilmington, North Carolina, and by 1930 the steam engine had been replaced by a diesel engine and the boat renamed *Stone 6*. The 84-foot by 20½-foot vessel had a wooden hull.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The abandoned remains of the *Stone 6* were located at the Stone Marine Railway on Eagles Island. The hull was intact, and although the wheelhouse had collapsed, portions of the superstructure, including the galley and head, were still standing. The engine had been removed from the vessel, but the fuel tanks remained. Iron mast steps were located on the main deck near the bow and stern, and the wreck was flooded up to the deck level at high tide.

UAU Site # 0013CFR	**State Plane Coordinates**
Minnesota	**2316821 E, 177343 N**

The *Minnesota* had a wooden hull and was built in Trenton, New Jersey, in 1910 as a diesel-powered, screw-propelled fishing boat. The Southport Fish Scrap and Oil Co. purchased the vessel prior to 1930 for fishing and freight transport.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The abandoned remains of the *Minnesota* were located on Eagles Island just north of the Stone Marine Railway. The hull of the vessel was intact up to the deck level, but no superstructure was left at the site. A four-cylinder Fairbanks-Morse diesel engine remained in place. A bow-mounted windlass, a water tank, and fishing net doors were also present at the site. The site was perpendicular to the river, buried in the mud, and visible only at low tide.

UAU Site # 0014CFR
Stone 3

State Plane Coordinates
2316819 E, 177358 N

The *Stone 3* was built in Southport, North Carolina, as a wooden-hull, diesel-powered screw tugboat in 1905 and was originally named the *Isabelle*. The 50-foot-by-13.4-foot vessel was renamed *Stone 3* sometime prior to 1930.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The abandoned remains of the *Stone 3* were buried in the mud, exposed at low tide, just north of the Stone Marine Railway on Eagles Island. The hull was intact, but the superstructure was no longer present. Wooden fender guards ran the length of the vessel below the gunnel, and a set of iron towing bitts were in place near the stern. A four-cylinder Fairbanks-Morse diesel engine was still mounted in the boat.

UAU Site # 0015CFR
Argonauta

State Plane Coordinates
2316822 E, 177447 N

The *Argonauta* was an iron-hull, steam-powered screw tugboat, built in Camden, New Jersey, in 1876. The U.S. Government purchased the 80-foot-by-18½-foot vessel in 1890 for use by the U.S. Army Corps of Engineers (USACOE) in Charleston Harbor, South Carolina. By 1930 the *Argonauta* had been purchased by R. R. Stone for use on the Cape Fear River **(Figure 80)**.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The abandoned remains of the *Argonauta* were located just north of the Stone Marine Railway on Eagles Island, lying perpendicular to the river **(Figure 81)**. The deck and superstructure were no longer present, and the bow section had broken loose from the rest of the hull. A horizontal fire-tube boiler remained in place in good condition, and a well-preserved fore-and-aft compound steam engine was still mounted in the hull. With the exception of the boiler dome and the bow section, the entire site was underwater at high tide.

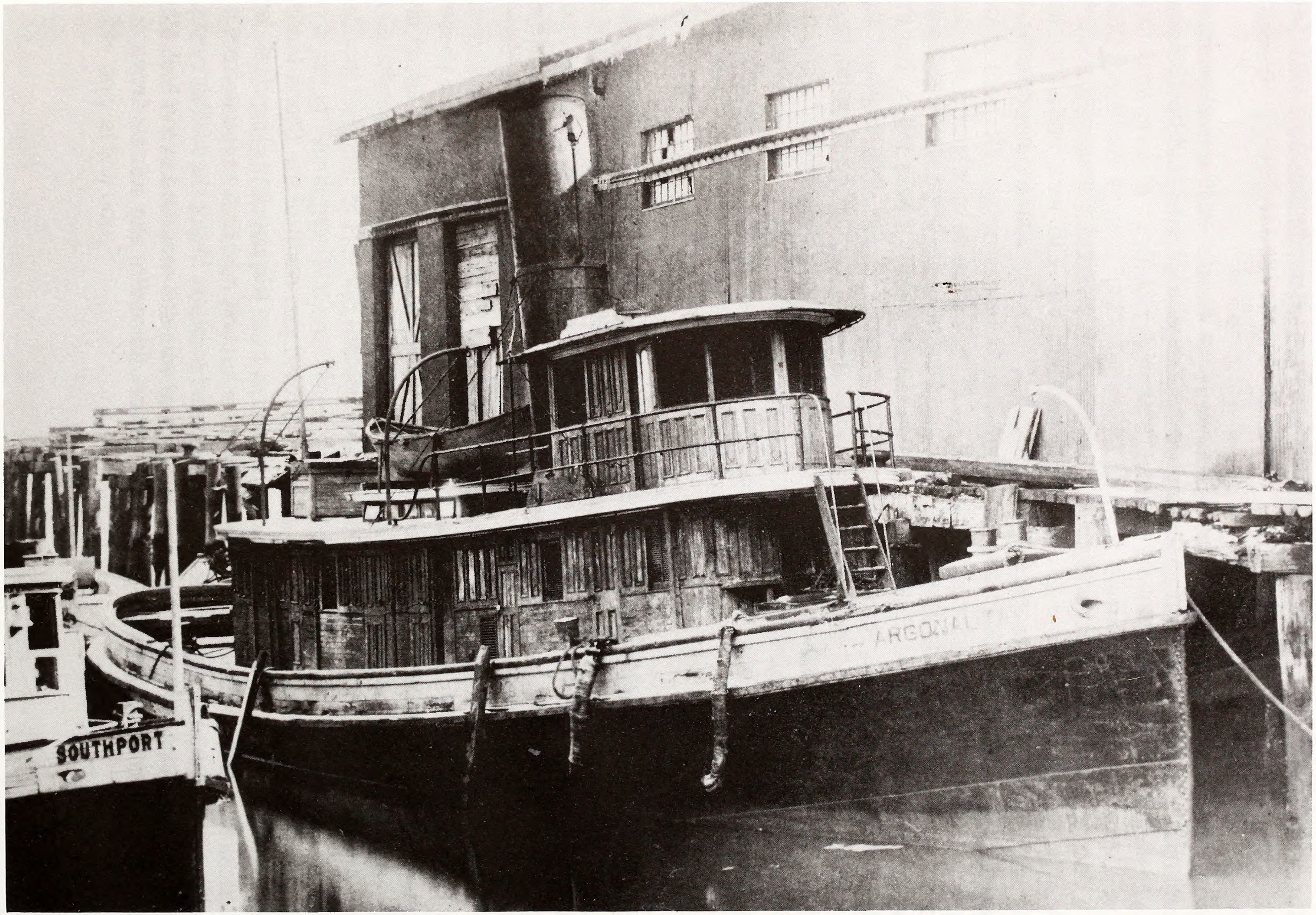

ARGONAUTA
SOUTHPORT

Figure 80. The iron hull steam tugboat *Argonauta* was built in Camden, New Jersey in 1876, and came to Wilmington, North Carolina, in the 1920s.

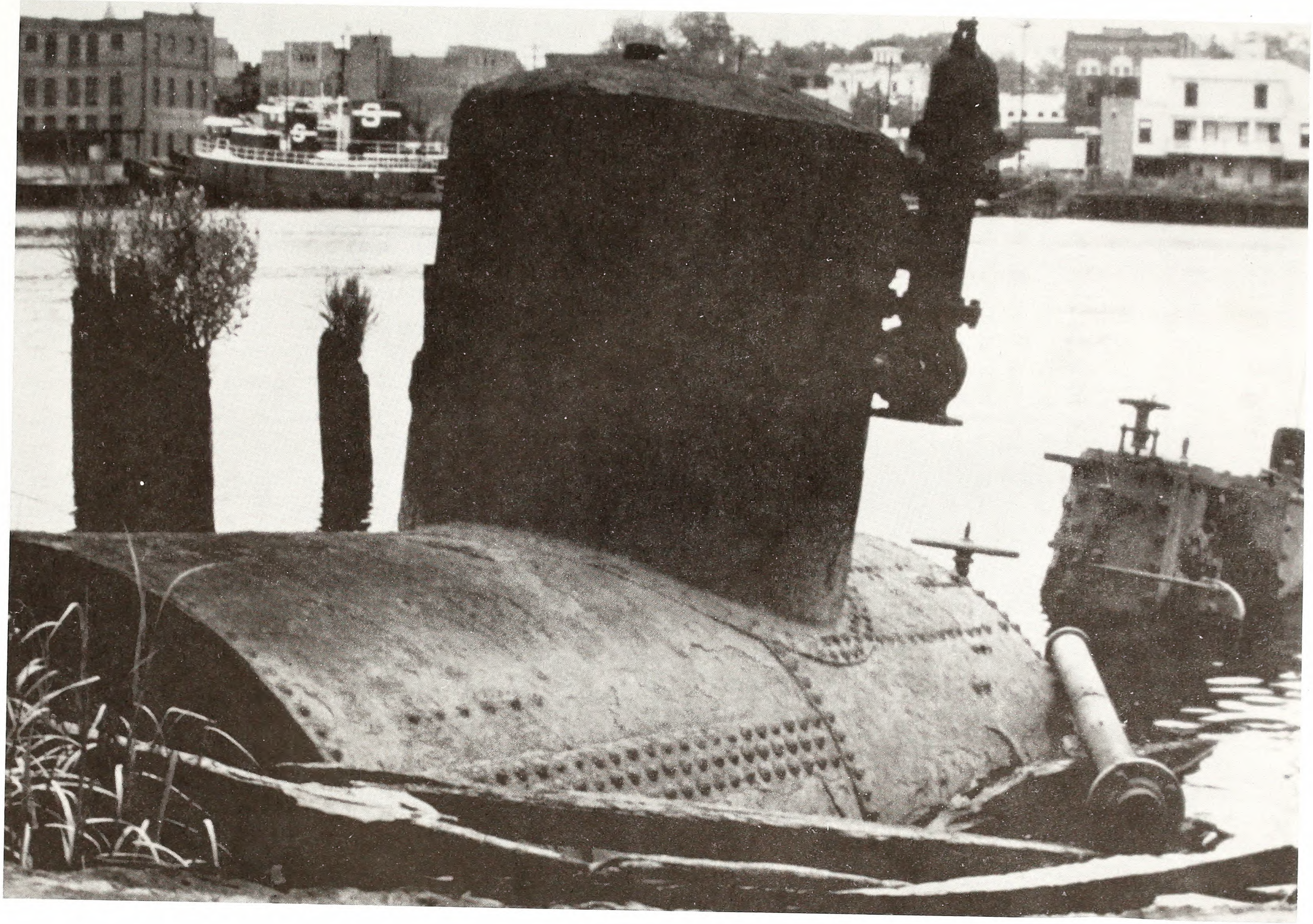


Figure 81. The remains of the *Argonauta* (0015CFR) on Eagles Island still contain a horizontal fire tube boiler and a well-preserved, compound steam engine.

UAU Site # 0016CFR
John Knox

State Plane Coordinates
2316917 E, 177733 N

The *John Knox* was a diesel-powered ferryboat built in Morehead City, North Carolina, in 1919 for use on the Cape Fear River. A February 15, 1935, advertisement in the Wilmington News described the *John Knox* as follows:

> One double end ferryboat 80 feet long, 37 foot beam, 7½ foot draft. Equipped with 100 horse power Fairbank-Morse semi-Diesel engine, electric lighting plant and necessary life preservers. Two driveways, cabin on each side. Will accommodate eight or ten automobiles and 200 passengers or more. In good condition and fully equipped and ready for immediate service.

The *John Knox* was used for over a decade to ferry vehicles and passengers across the Cape Fear River from the foot of Market Street in Wilmington to the causeway on Eagles Island **(Figure 82)**. The completion of a highway bridge across the river in the 1930s put the *John Knox* out of business. In June 1937, while inactive and moored on the Eagles Island side of the river, the *John Knox* caught on a piling and sank.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The remains of the *John Knox* were found to lie parallel to the river resting on its side in 15 feet of water. The superstructure and decking were no longer present, but the hull was relatively intact. The upper portions of frames protruded above the water at low tide.

UAU Site # 0017CFR
Eagles Island Skiff #1

State Plane Coordinates
2316827 E, 177695 N

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The 16-foot-by-3½-foot wooden skiff was buried in the mud, exposed at low tide on Eagles Island opposite Market Street. The boat had a sharp bow, flat bottom, and square transom.

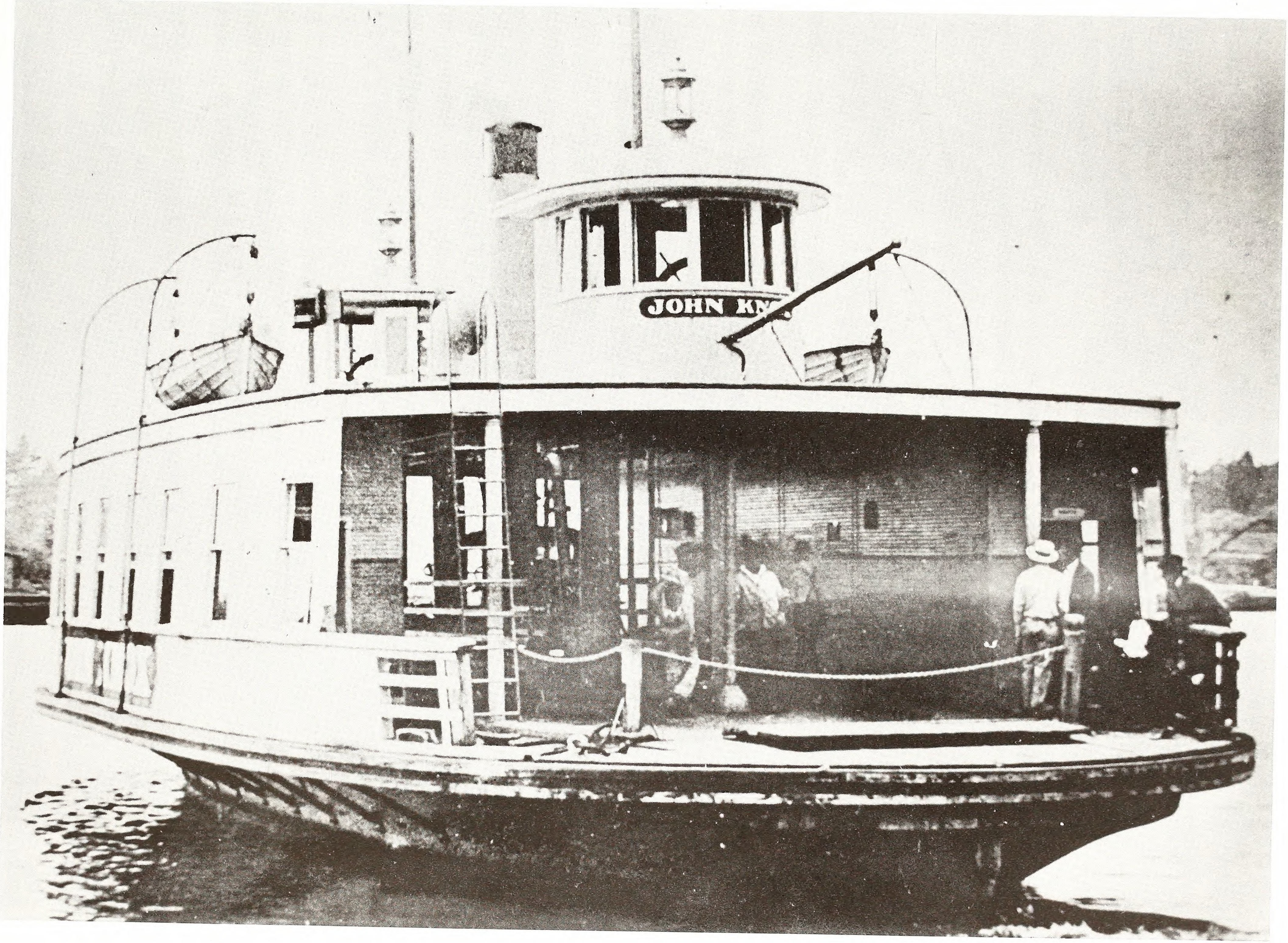


Figure 82. The ferryboat *John Knox* (0016CFR) carried vehicles and passengers.

UAU Site # 0018CFR **State Plane Coordinates**
Last One Wreck **2316357 E, 175892 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

This 86-foot-by-20-foot wreck was barely exposed at low tide. The site was located between the Government Boat Yard and the Hamme Marine Railway on Eagles Island and was oriented parallel to the shoreline. The bow was pointed to the north, and the intact hull was buried with only the tops of frames protruding above the mud. The wreck appeared in a 1924 aerial photograph of the river and was badly deteriorated at that time. The buried portion of this wreck should be in an excellent state of preservation. Because of the limited amount of the site that was exposed, it was not possible to determine the vessel's means of propulsion or use.

UAU Site # 0019CFR **State Plane Coordinates**
Eagles Island Launch **2316496 E, 176303 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

Only the forward 13½ feet of the boat were exposed above the mud bottom at low tide. The beam at that point was 6 feet, indicating an overall length of approximately 25 feet. The presence of iron strapping on the bow and the relatively heavy framing and planking indicated that the vessel was built as a work boat and probably powered with a gasoline or diesel engine. The site was located just south of the Hamme Marine Railway on Eagles Island.

UAU Site # 0020CFR **State Plane Coordinates**
Bulkhead Barge **2316555 E, 176311 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The heavily constructed, wooden, rectangular barge had been placed on the shoreline, parallel to the river, to serve as a bulkhead. The barge had been filled with rubble, and the north end, which was covered with concrete, merged with a concrete bulkhead. The presence of the rubble, concrete, and a heavy growth of vegetation made it difficult to determine the extremities of the wreck, but it was approximately 45 feet by 15 feet. The longitudinal 3-inch-by-8-inch side hull planking was edge fastened with iron driftpins. A layer of vertical 2-inch-by-10-inch planking had been attached to the outside of the side hull planking. Three athwartship bulkheads were present in the interior of the barge, and deck beams were still in place. No decking was left at the site. The southern end of the barge was raked.

UAU Site # 0021CFR
Stone Dry Dock and Marine Railway

State Plane Coordinates
2316745 E, 177019 N

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The remains of a wooden, floating dry dock and a marine railway and cradle were located at the Stone Marine Railway. The hull and decking of the dry dock were intact and measured approximately 75 feet by 20 feet. Designed to be flooded, placed under a vessel, and pumped clear of water to raise the vessel, the dry dock was completely submerged at high tide.

The tracks of the marine railway led into the water in the railway slip and the cradle was still intact resting on the rails at the water's edge. The discarded remains of a variety of marine-related equipment such as steam and diesel engines, anchors, propellers, and boilers were located along the shoreline of the railway slip.

UAU Site # 0022CFR
Skinner's Dock Wreck

State Plane Coordinates
2317328 E, 176187 N

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The relatively small, 27-foot-by-7-foot vessel was completely submerged in 20 feet of water. The bow pointed up river, adjacent to the dilapidated wharf of the former Skinner Marine Railway and Boat Yard on the Wilmington side of the river. The bottom portion of the hull, although buried in as much as 4 feet of mud sediment, was intact. The port side of the hull had broken loose at the turn of the bilge, but the starboard side was still attached. The hull planking was fastened to the frames with copper nails. The 6-foot-long engine timbers were present amidships, but the engine and propeller shaft had been removed. The vessel was most likely powered by a diesel or gasoline engine. The boat was probably used as a launch or small towing boat.

UAU Site # 0023CFR	**State Plane Coordinates**
Lucretia	**2316960 E, 173000 N**

The *Lucretia* was a canal-type barge located in the tidal mud flats along the east bank of the Cape Fear River adjacent to the Cape Fear Terminal Company. The *Lucretia* was one of several abandoned vessels in this area, which is bounded by Wright Street on the north and Marsteller Street on the south. This section of the river was the scene of considerable industrial activity during the second half of the nineteenth and early twentieth centuries. These industries included Kidders Saw Mill, which operated from the time of the Civil War until 1910, as well as a number of businesses with shorter existences, such as the Germania Handle Manufacturing Company; J. C. Selby Handle Factory; Wilmington Lumber Company; Atlantic Shingle, Cooperage, and Veneer Company; and the Wilmington Cooperage Company. A 1921-1922 map prepared by the USACOE showed that these lumber businesses had been replaced by the Cape Fear Terminal Company and that the property was used for oil storage and refining. A 1937 USACOE map of the area shows no change in the shoreline industries, but it does show nine abandoned vessels, including the *Lucretia*, located in the shallow water area bounded by the L-shaped pier of the Cape Fear Terminal Company.

The barge was identified as the *Lucretia* by Donald Bordeaux of Bordeaux Salvage and Construction Company. According to Bordeaux, the barge was owned by the Stone Towing Company before being abandoned. A search of the 1895 to 1924 volumes of the annual List of Merchant Vessels of the United States identified two unrigged vessels named *Lucretia*. The first, official number 48675, was a wooden canal boat built in 1901 at Whitehall, New York. That vessel was registered as 117 gross tons and 111 net tons. From 1901 until 1915 the home port for that *Lucretia* was shown as Plattsburg, New York, and from 1916 until 1924 the home port was listed as Albany, New York. Later editions of the List of Merchant Vessels of the United States were not available for inspection to determine what happened to this vessel and if ownership was ever transferred to Wilmington, North Carolina. The second *Lucretia*, official number 200216, was a wooden barge built in 1903 at Pocomoke City, Maryland. Net and gross tonnage for that vessel were shown as 285 tons. For most of the period from 1903 to 1922, the home port was listed as Baltimore, Maryland, although in 1910 the home port was Norfolk, Virginia. The Pocomoke City *Lucretia* was not listed in the 1923 or 1924 editions of the List of Merchant Vessels. Of those two vessels named *Lucretia*, wreck site 0023CFR most closely resembles the canal boat built in 1901 at Whitehall, New York.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 68)**. The *Lucretia* site measured 23 feet, 5 inches in breadth and had a length of approximately 160 feet. The vessel had a sharp bow, rounded stern, and was equipped with a rudder. A number of 9-inch-by-9-inch athwartship deck beams, supported by hanging knees, were still present on the site, and there was evidence that an enclosed cabin was once located near the stern of the vessel.

UAU Site # 0024CFR	**State Plane Coordinates**
Sanded Barge	**2316218 E, 175789 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

Located on the west bank just north of the Cape Fear River Memorial Bridge, the lightly construction 35-foot-by-17-foot barge was mostly buried in the sand bottom and exposed only at low tide. The wooden barge was rectangular, and both ends were raked. Two athwartship bulkheads were located in the hull.

UAU Site # 0025CFR	**State Plane Coordinates**
Little Barge	**2316198 E, 175770 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

This small, but heavily constructed barge, was located on the west bank of the river just north of the Cape Fear River Memorial Bridge. The bottom of the 21-foot-by-7-foot barge was buried in the sand, but the sides protruded above the bottom and were exposed at low tide. The barge was rectangular, constructed of wood, and contained two athwartship bulkheads.

UAU Site # 0026CFR	**State Plane Coordinates**
Government Barge	**2316246 E, 175812 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The site was located just north of the Cape Fear River Memorial Bridge in an area that was once part of the Government Boat Yard on Eagles Island. The abandoned barge can be seen in a 1924 aerial photograph of the Cape Fear River. The rectangular barge measured 75 feet by 32 feet, was constructed with heavy timbers, and was divided into five compartments by four athwartship bulkheads. The outer hull planking was composed of an inner layer of longitudinal planking covered by a second layer of vertical planking. Numerous pieces of chain and cable, and iron tiedowns were located inside the barge, indicating that at some time in its career it may have carried heavy machinery.

UAU Site # 0027CFR	**State Plane Coordinates**
H. G. Wright	**2316767 E, 177182 N**

The *H. G. Wright* was built in Fayetteville, North Carolina, in 1882 for use by the USACOE as a snag boat. The 102-foot-by-20-foot, wooden, sternwheel steamboat operated for a number of years clearing logs and snags from the Cape Fear River and its major navigable tributaries, the Black River and the Northeast Cape Fear River. In the 1930s R. R. Stone purchased the vessel and took it to his boatyard on Eagles Island. The *H. G. Wright* was last used by Stone as a galley and dining area for his employees' mid-day meal.

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

When examined during the 1983 survey, the abandoned remains of the *H. G. Wright* were located at the Stone Marine Railway **(Figure 83)**. Lying perpendicular to the river, the buried bow of the vessel was on dry land, while the stern was in the water and submerged at high tide. A thick growth of marsh grass covered the entire site. Near amidships was a horizontal fire-tube boiler, and two horizontal, high-pressure, slide-valve steam engines were still mounted on the stern. The engines had an 8-inch bore and a 3-foot-2-inch stroke. The engines were still attached by the piston rod, crosshead, and connecting rod to the stern paddle wheel. The paddle wheel measured 9 feet, 9 inches in diameter. With the exception of the now missing wooden blades, the paddle wheel was intact. The vessel's three parallel rudders were also present at the site.

During a 1987 project conducted by the UAU and the Cape Fear Museum, excavators removed the steam machinery (boiler, engines, and paddle wheel) and the transom timber from the *H. G. Wright* site using a barge-mounted crane provided by Donald Bordeaux of Bordeaux Salvage and Construction Company. In order to remove corrosive river salts from the machinery, the boiler, engines and paddle wheel were treated in a large furnace at the American Crane Corporation facilities in Wilmington. The equipment was heated in the furnace to one thousand degrees Fahrenheit for three hours in an effort to vaporize the salts. After heat treatment the machinery was

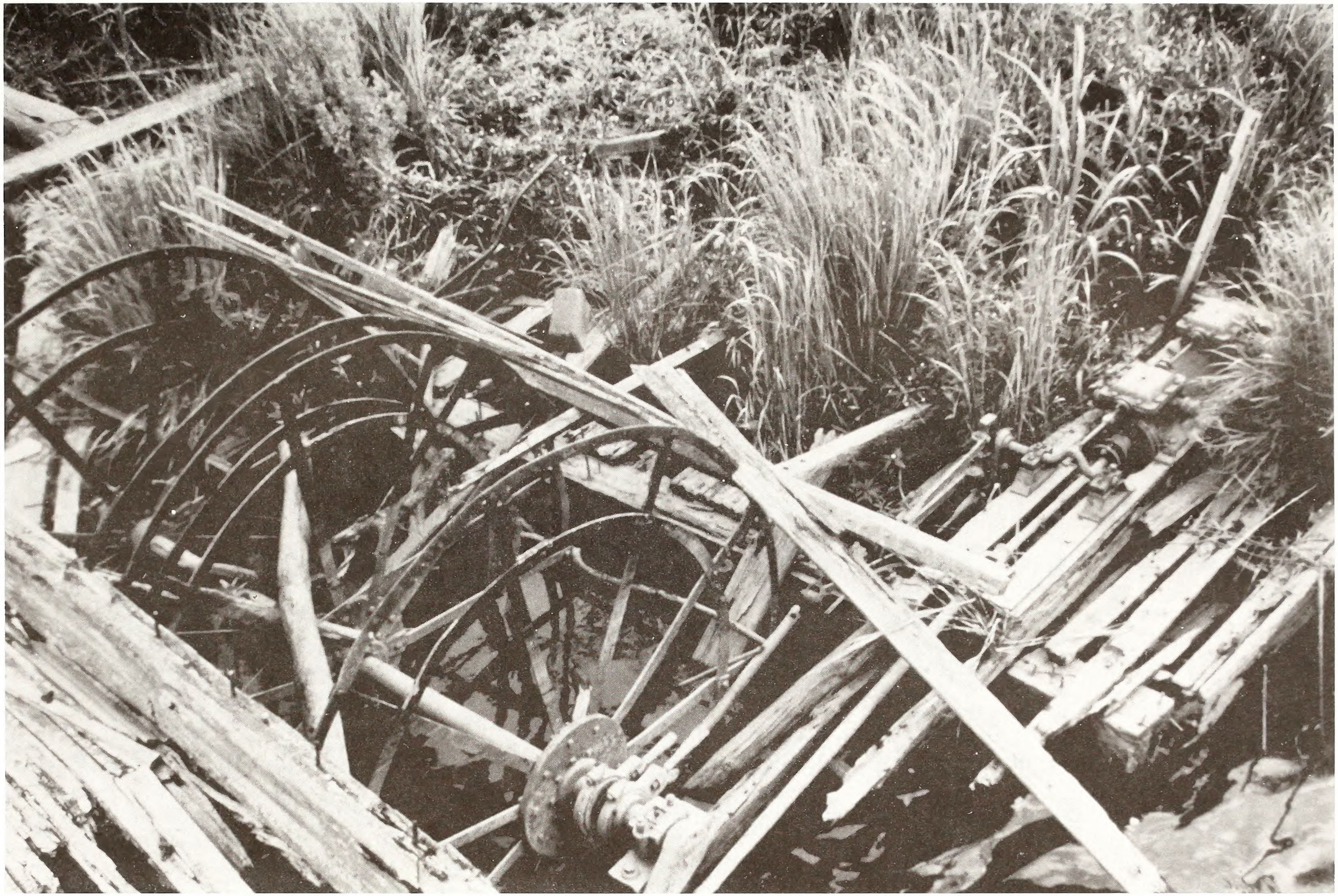


Figure 83. The remains of the sternwheel steamboat *H. G. Wright* (0027CFR) as photographed in 1983. The vessel's sternwheel, boiler, and two horizontal steam engines, were recovered from the site in 1987 and are now on display at the Cape Fear Museum in Wilmington.

taken to the Fort Fisher Preservation Laboratory where it was cleaned by sandblasting and painted with a protective coating. UAU volunteer Jerry Dunn then overhauled the machinery, fabricating missing components, and was able to return the engines and paddle wheel to operable condition using high-pressure air instead of steam. The *H. G. Wright* machinery was then placed on permanent display at the Cape Fear Museum on Market Street in Wilmington.

UAU Site # 0028CFR	**State Plane Coordinates**
Stone 4	**2316800 E, 177062 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

This 40.4-foot-by-12.6-foot wooden-hull vessel, originally named the *Eva*, was built in Southport, North Carolina, in 1915 as a diesel-powered screw tugboat. By 1930 the boat had been renamed the *Stone 4* and was owned by R. R. Stone of Wilmington.

The abandoned remains of the *Stone 4* were located at the Stone Marine Railway on Eagles Island. Although the superstructure was no longer present, the hull was virtually intact. A three-cylinder diesel engine and towing bitts were still mounted in the hull. The site was submerged at high tide, and a heavy growth of marsh grass covered the wreck.

UAU Site # 0029CFR	**State Plane Coordinates**
Iron Rudder Wreck	**2316471 E, 176179 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The Iron Rudder Wreck measured 60 feet-by-19 feet and was found lying buried in the mud perpendicular to the river south of the Hamme Marine Railway. Only the bottom portion of the hull to the turn of the bilge was left at the site. In the stern section a wooden engine bed, a propeller-shaft guide timber, and an iron rudder were still present. Just forward of the engine bed a mortise had been cut in the keelson resembling a mast step.

UAU Site # 0030CFR	**State Plane Coordinates**
Splayed Wreck	**2316541 E, 176204 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The 47-foot-by-9-foot wreck was buried in the mud, just barely exposed at low tide. The site was located just south of the Hamme Marine Railway on Eagles Island. The sides of the vessel had broken away from the bottom of the hull and were lying flat on the bottom. Without further investigation it was not possible to determine the vessel's means of propulsion or use. The highly deteriorated condition of the wreck indicated that it was abandoned in the late-nineteenth century or early-twentieth century.

UAU Site # 0031CFR	**State Plane Coordinates**
***Argonauta* Barge**	**2316861 E, 177423 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The 55-foot-by-17-foot wood barge was located just north of Stone Marine Railway on Eagles Island. The barge was lying perpendicular to the river, adjacent to the steam tugboat *Argonauta*. The bottom of the barge was buried in the mud, and the partially intact sides were visible only at low tide. Deck support stanchions were located in the interior of the barge, but the deck was missing. The side hull planking was edge fastened with iron driftpins, and both ends of the barge were raked.

UAU Site # 0032CFR	**State Plane Coordinates**
***Wright* Barge**	**2316778 E, 177205 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

Located adjacent to the sternwheel steamboat *H. G. Wright* at the Stone Marine Railway, this wooden barge measured 54 feet by 19 feet. Both ends of this rectangular barge were raked, and three longitudinal deck beams, supported by stanchions, were still in place. Although most of the barge was exposed at low tide, much of the site was covered with vegetation.

UAU Site # 0033CFR
Cherokee
State Plane Coordinates
2316795 E, 177083 N

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

This 34-foot-by-7½-foot vessel was located at the Stone Marine Railway on Eagles Island. The wooden-hull vessel was identified by Russell Stone as a gasoline-powered, screw launch named the *Cherokee*. The vessel probably dates from the first quarter of the twentieth century.

The remains of the *Cherokee* were mostly buried in the mud and were exposed at low tide. No superstructure remained at the site, but the hull and decking were intact. The engine had been removed from the boat; however, the rudder and wooden bitts were still present.

UAU Site # 0034CFR
Eagles Island Other Skiff
State Plane Coordinates
2316805 E, 177811 N

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

Located on Eagles Island opposite Market Street, the 17-foot-by-4½-foot wooden skiff was buried in the mud bottom and exposed at low tide. The boat had a sharp bow, a square transom, and flat bottom.

UAU Site # 0035CFR
Seven Marys
State Plane Coordinates
2316830 E, 173210 N

The UAU documented the site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 68)**. The site was located in the tidal mud flats along the east bank of the Cape Fear River adjacent to the Cape Fear Terminal Company (see site description for *Lucretia*, 0023CFR). Donald Bordeaux of Bordeaux Salvage and Construction Company identified the wooden vessel as the menhaden fishing boat *Seven Marys*. According to the 1924 edition of the List of Merchant Vessels of the United States, the *Seven Marys* was built in Salisbury, Maryland, in 1902 and was equipped with a gasoline screw engine. The boat was listed as having a length of 64 feet, a breadth of 16 feet, and a depth of hold of 4 feet. In 1924, Wilmington, North Carolina, was shown as the home port for the *Seven Marys*, and the boat had a crew of twelve. Beyond recording the presence and location of the wreck, no archaeological investigations have been conducted at the site.

UAU Site # 0036CFR	**State Plane Coordinates**
Bostic	**2316940 E, 173210 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 68)**. The site was located in the tidal mud flats along the east bank of the Cape Fear River adjacent to the Cape Fear Terminal Company (see site description for *Lucretia*, 0023CFR). Donald Bordeaux of Bordeaux Salvage and Construction Company identified the wooden-hull vessel as the *Bostic*. Historical research, however, has failed to identify a vessel by that name. Beyond recording the presence and location of the wreck, no archaeological investigations have been conducted at the site.

UAU Site # 0037CFR	**State Plane Coordinates**
Stone 1	**2316980 E, 172850 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 68)**. The site was located in the tidal mud flats along the east bank of the Cape Fear River adjacent to the Cape Fear Terminal Company (see site description for *Lucretia*, 0023CFR). Donald Bordeaux of Bordeaux Salvage and Construction Company identified the wooden vessel as the steam tugboat *Stone 1*. According to the 1924 edition of the List of Merchant Vessels of the United States, *Stone 1* (ex-*Theo. C. Knight*, ex-*Alexandra Stewart*) was built in Buffalo, New York, in 1903. The vessel was listed as having a length of 48.6 feet, a beam of 14.1 feet, and a depth of 7 feet. The 1924 list also reported *Stone 1* was 29 gross tons, 20 net tons, and that the vessel's home port was Wilmington, North Carolina.

Most of the hull of the *Stone 1* site was buried in the mud immediately beside the remains of the Kidder Saw Mill lumber dock. Portions of the frame ends and main decking were exposed above the bottom at low tide. An unusual rectangular boiler that protruded out of the center of the hull was the most notable feature at the site. The boiler measured 9 feet in length, 5 feet in width, and was topped by a cylindrical steam dome that measured 4 feet in diameter and 3 feet, 8 inches in height. Probing in the mud aft of the boiler failed to locate the remains of a steam engine, propeller shaft, or propeller.

UAU Site # 0039CFR	**State Plane Coordinates**
South Battleship Barge	**2316009 E, 179276 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The site is located 200 yards north of the USS *North Carolina* Battleship Memorial on Eagles Island. Lying perpendicular to the river, the site was exposed at low tide, and the western half was filled with mud and covered by a heavy growth of marsh grass. The 20-foot-by-68-foot barge was divided by four athwartship bulkheads, and the side hull was formed with frames and planks. The eastern end of the barge was raked.

UAU Site # 0040CFR	**State Plane Coordinates**
North Battleship Barge	**2316012 E, 179306 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

The 24-foot-by-75-foot wooden barge was located adjacent to the South Battleship Barge on Eagles Island. This barge was rectangular with raked ends, and the side hull planking was edge fastened. The site was visible at low tide, and a dense growth of marsh grass covered most of the western half.

UAU Site # 0041CFR	**State Plane Coordinates**
Intact Tug	**2316719 E, 176694 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

Donald Bordeaux of Bordeaux Salvage and Marine Construction Company and William Murrel of Wilmington Shipyard identified the wooden-hull vessel as the diesel-powered tugboat *Iscoe*. The vessel was abandoned sometime in the 1960s. It was not known when or where the *Iscoe* was built, but it was reported to have come to Wilmington from Virginia. The site was located between the Hamme and Stone Marine Railways and the 55-foot-by-16-foot vessel was found lying perpendicular to the river alongside a dilapidated pier.

Although the wooden hull of the *Iscoe* was severely weathered and partially covered with vegetation, the vessel was relatively intact. The superstructure was still in place and included the wheelhouse, galley, and head. The diesel engine had been removed before the vessel was abandoned. Two fuel tanks were still located in the hull, however, as were the rudder and towing bitts.

UAU Site # 0042CFR	**State Plane Coordinates**
Steam Crane Barge #2	**2316717 E, 176781 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 74)**. In 1985 the site was added to the National Register of Historic Places as a contributing property within the boundaries of the existing Wilmington National Register Historic District.

Located between the Hamme and Stone Marine Railways and next to site Steam Crane Barge #1 (0009CFR), this 60-foot-by-20-foot rectangular barge contained two dislodged cable windlass assemblies. Two small horizontal steam engines powered each windlass assembly. A vertical fire-tube boiler, lying on its side, and a rectangular hot well, were also located inside the barge. The west end of the barge was raked, and the east end was plumb. The side hull was constructed with frames and planks, and three longitudinal bulkheads ran the length of the barge. The site was exposed at low tide, and much of the hull was filled with mud and covered with vegetation.

UAU Site # 0062CFR	**State Plane Coordinates**
Workboat Number 2	**2317407 E, 177455 N**

Tidewater Atlantic Research (TAR) discovered the Workboat Number 2 site during a survey of Wilmington Harbor for the USACOE in 1987. The wreck was found lying between the stern of the *A. P. Hurt* (UAU Site # 0003CFR) and the bow of the *Blanchard* (UAU Site # 0002CFR) in 35 feet of water **(Figure 74)**. The 28-foot-long vessel was found lying upside down, with the transom, rudder, screw, propeller shaft, skeg, keel, and lower part of the stem exposed above the river bottom. It was felt that the vessel was built in the twentieth century and designed for a gasoline engine.

UAU Site # 0063CFR	**State Plane Coordinates**
Work Barge	**2316893 E, 177600 N**

During a survey of Wilmington Harbor conducted for the USACOE in 1987 TAR discovered the Work Barge Site. The remains of the wooden barge were located in 12 to 35 feet of water immediately downstream of the *John Knox* (UAU Site # 0016CFR) on the west side of the river channel **(Figure 74)**. The barge's intact deck contained mooring bits, towing fairleads, and, near amidships, lifting machinery.

UAU Site # 0068CFR	**State Plane Coordinates**
Walker Barge	**2317119 E, 178640 N**

The remains of this wooden barge were reported to the UAU by local divers Ben Walker and Robert Brooke in 1988. The vessel was located in 40 feet of water on the east side of the river channel near the end of Princess Street **(Figure 74)**. The UAU examined the site in July 1988 and noted the following structural features: edge-fastened side hull planking, cambered deck beams, and a longitudinal bulkhead which ran down the center of the barge. Since the northern end and eastern side were entirely buried, it was not possible to determine the vessel's overall dimensions.

UAU Site # 0075CFR	**State Plane Coordinates**
Sugarloaf Sharpie	**2327716 E, 105965**

The Sugarloaf Sharpie site was reported to the UAU by Carolina Beach resident Sharon Ely in 1990. The site was documented in November 1990 as the conclusion of a seven-part workshop series on the management of small craft remains. The remains of the 30-foot-long, two-masted sailing vessel were found eroding out of the bank of the Cape Fear River adjacent to Sugarloaf, the prominent sandhill located in Carolina Beach State Park **(Figures 69,84)**. The boat contained a centerboard and four longitudinal stringers and, typical of sharpie construction, had a flat bottom with athwartship bottom planking.

UAU Site # 0099CFR	**State Plane Coordinates**
CFT North	**2317030 E, 173130 N**

This site was located in the tidal mud flats along the east bank of the Cape Fear River adjacent to the Cape Fear Terminal Company (see site description for *Lucretia*, 0023CFR). The UAU recorded the presence and location of this wooden-hull barge during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 68)**. No further archaeological investigations have been conducted at the site, however.

UAU Site # 0100CFR	**State Plane Coordinates**
CFT Big Barge	**2316800 E, 173050 N**

The site was located in the tidal mud flats along the east bank of the Cape Fear River adjacent to the Cape Fear Terminal Company (see site description for *Lucretia*, 0023CFR). The large, rectangular, wooden barge was situated just offshore of the *Lucretia* site. The UAU recorded the presence and location of this site during a 1983

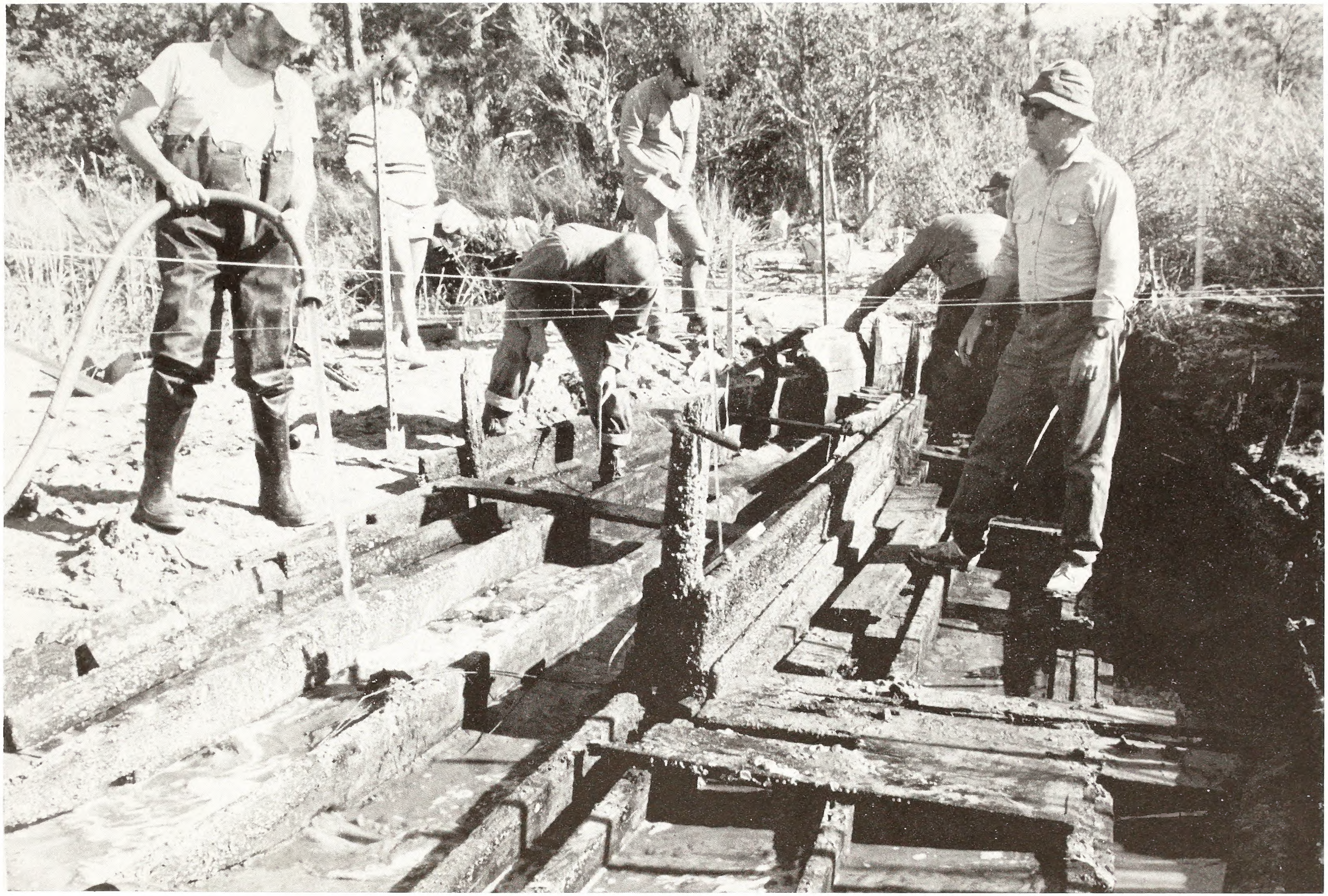


Figure 84. Participants document the remains of the Sugarloaf Sharpie (0075CFR) on the banks of the Cape Fear River near Carolina Beach in 1990 during a UAU-sponsored small craft management workshop.

survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 68)**. No further archaeological investigations have been conducted at the site, however.

UAU Site # 0101CFR
CFT South

State Plane Coordinates
2317060 E, 172840 N

The site was located in the tidal mud flats along the east bank of the Cape Fear River adjacent to the Cape Fear Terminal Company (see site description for *Lucretia*, 0023CFR). The UAU recorded the presence and location of the wooden-hull, rectangular barge during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 68)**. No further archaeological investigations have been conducted at the site, however.

NORTHEAST CAPE FEAR RIVER

UAU Site # 0009NER	**State Plane Coordinates**
Spray	**2317397 E, 187660 N**

The sidewheel steamboat *Spray* was built in Wilmington, Delaware, in 1852 by Richard Gilpin at the yard of William and Albert Thatcher. The vessel's engines and other machinery were provided by the Pusey and Jones Company, also of Wilmington, Delaware. By early 1853 the *Spray* had been brought to Wilmington, North Carolina, and was in operation on the Cape Fear River. Newspaper advertisements and enrollment documents can be found for the *Spray* up to 1858, after which there is no further mention of the vessel. It is speculated that the *Spray* was lost during the Civil War, perhaps scuttled intentionally to block the Northeast Cape Fear River channel. One possibility is that the *Spray* became the CSS *Caswell*, a sidewheel steamer of unknown origin and dimensions that served in the Wilmington area. The *Caswell* was reported to have been destroyed near Wilmington. The location of the destruction was not recorded, however.

Allen R. Saltus of Archaeological Research and Survey located the remains of the steamboat *Spray* 750 feet north of the Hilton railroad bridge during a 1981 magnetometer survey of a proposed coal terminal turning basin in the Northeast Cape Fear River **(Figure 73)**. Subsequent to the vessel's discovery, the UAU, working in conjunction with Allen Saltus, conducted a four-week investigation of the site. This project resulted in a detailed recording of the steamboat's construction and the recovery of a large collection of artifacts **(Figure 85)**.

The vessel measured 133 feet in length; 17 feet, 3 inches in breadth; and had an estimated depth of hold of 4 feet, 6 inches. The connected remains of the lower hull, up to the turn of the bilge, were found to be mostly buried in the mud bottom. Nearby, portions of the side hull were observed lying on the bottom, but most of the upper hull was missing. The vessel was a sidewheel steamboat. Of the original machinery, however, only one of two steam engines and a portion of the paddle-wheel shaft were still present at the site.

The most remarkable aspect of the vessel's construction proved to be 1½-inch-by-½-inch iron bands which were oriented athwartships every 15 inches on the outside of the hull planking, similar to hoops on a barrel. The bands passed between the keel and the keel cap and followed the outside contour of the hull to the gunwale. At the gunwale the flat straps became threaded rods which passed through holes in the gunwale and were held in place by a nut. The identity of the wreck as the *Spray* was based on a passage in a book by local historian James Sprunt, in which he described the steamer as "shaped like a barrel, hooped up on the sides."

In addition to numerous small artifacts, the vessel's remaining inclined steam engine was recovered in 1981, and in 1983 the paddle-wheel shaft was lifted from the site. Both of these objects were preserved and placed on display outside the UAU exhibit building at the Fort Fisher State Historic Site.

In 1988, Tidewater Atlantic Research (TAR), working under contract with the USACOE, inspected the *Spray* site and found that the wreck had been extensively disturbed since it was last observed in 1983.

UAU Site # 0014NER
Dixie Crystal Barge

State Plane Coordinates
2317947 E, 187664 N

The UAU first noted this site during the 1981 investigation of the steamboat *Spray* (see site description for *Spray*, 0009NER). The remains of this rectangular, wooden barge were exposed at low tide in the mud flats just north of the Dixie Crystal Company dock on the east bank of the Northeast Cape Fear River **(Figure 73)**. The location of the barge was recorded on a 1937 USACOE survey map of the mouth of Smith Creek. No further archaeological investigations have been conducted at the site.

UAU Site # 0015NER
Bordeaux Wreck

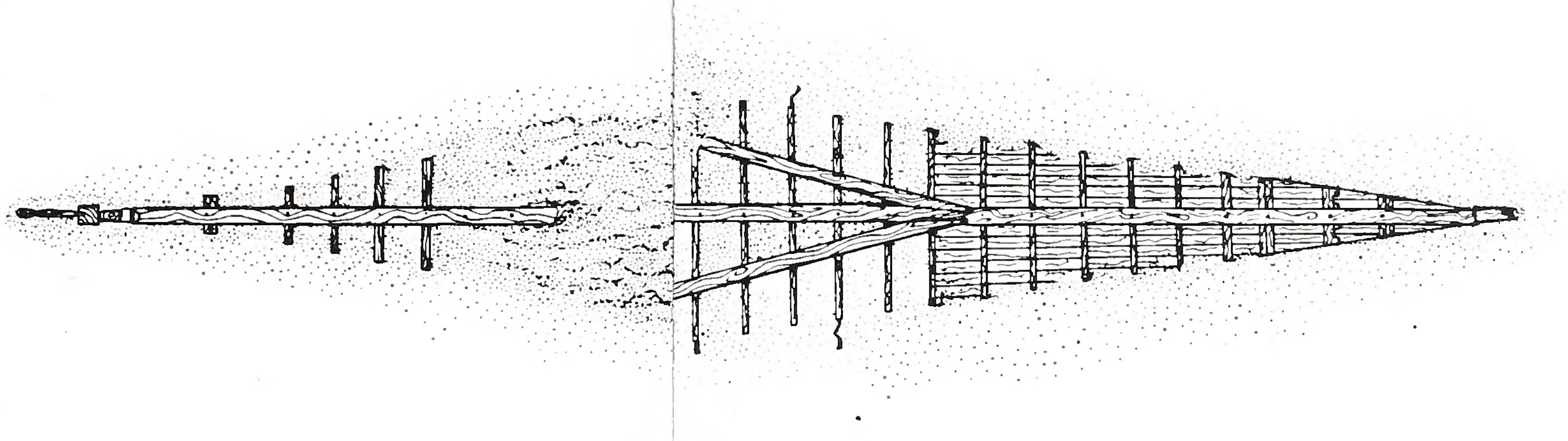
State Plane Coordinates
2315670 E, 180940 N

The UAU recorded the presence and location of the wooden-hull, centerboard sailing vessel during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. The remains were located perpendicular to the channel on the shoreline at Point Peter. A few frames were detected on both sides of the exposed centerboard trunk. No further archaeological investigations have been conducted at the site.

UAU Site # 0017NER
Bordeaux Barge

State Plane Coordinates
2315730 E, 180720 N

The UAU recorded the presence and location of this large wooden vessel during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. The wreck was positioned parallel to the channel and slightly offshore at Point Peter. Although no measurements were taken of the wreck site, it was observed that the vessel, which was only partially exposed at low tide, had double frame sets and that a portion of the deck remained intact. No further archaeological investigations have been conducted at the site.



Drawing by Daryl L. Law
(based on Allan Saltus original)
July, 1993

Figure 85. Plan view of the
investigated by Sal

In addition to numerous small artifacts, the vessel's remaining inclined steam engine was recovered in 1981, and in 1983 the paddle-wheel shaft was lifted from the site. Both of these objects were preserved and placed on display outside the UAU exhibit building at the Fort Fisher State Historic Site.

In 1988, Tidewater Atlantic Research (TAR), working under contract with the USACOE, inspected the *Spray* site and found that the wreck had been extensively disturbed since it was last observed in 1983.

UAU Site # 0014NER	**State Plane Coordinates**
Dixie Crystal Barge	**2317947 E, 187664 N**

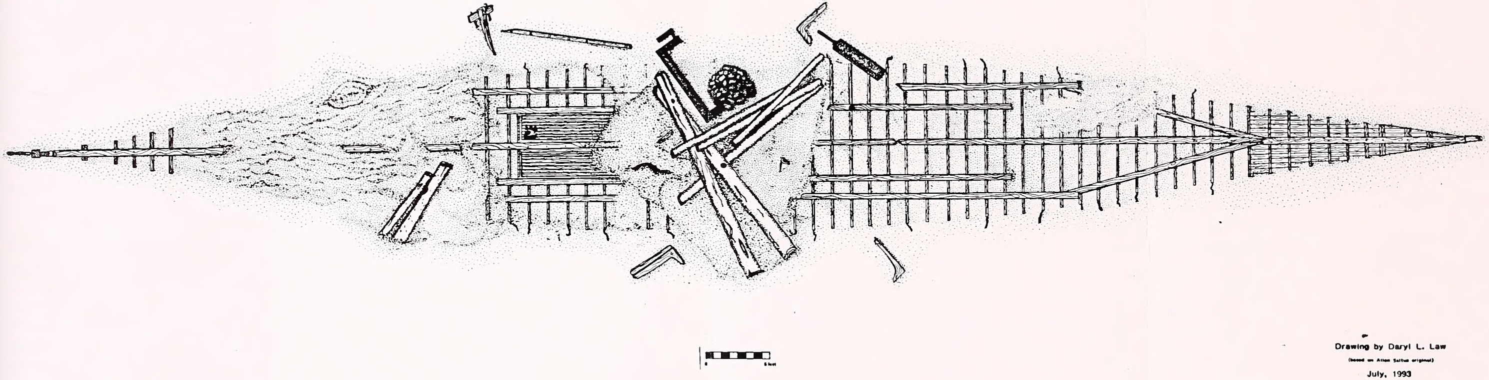
The UAU first noted this site during the 1981 investigation of the steamboat *Spray* (see site description for *Spray*, 0009NER). The remains of this rectangular, wooden barge were exposed at low tide in the mud flats just north of the Dixie Crystal Company dock on the east bank of the Northeast Cape Fear River **(Figure 73)**. The location of the barge was recorded on a 1937 USACOE survey map of the mouth of Smith Creek. No further archaeological investigations have been conducted at the site.

UAU Site # 0015NER	**State Plane Coordinates**
Bordeaux Wreck	**2315670 E, 180940 N**

The UAU recorded the presence and location of the wooden-hull, centerboard sailing vessel during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. The remains were located perpendicular to the channel on the shoreline at Point Peter. A few frames were detected on both sides of the exposed centerboard trunk. No further archaeological investigations have been conducted at the site.

UAU Site # 0017NER	**State Plane Coordinates**
Bordeaux Barge	**2315730 E, 180720 N**

The UAU recorded the presence and location of this large wooden vessel during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. The wreck was positioned parallel to the channel and slightly offshore at Point Peter. Although no measurements were taken of the wreck site, it was observed that the vessel, which was only partially exposed at low tide, had double frame sets and that a portion of the deck remained intact. No further archaeological investigations have been conducted at the site.



Drawing by Daryl L. Law
(based on Allen Saltus original)
July, 1993

Figure 85. Plan view of the steamboat *Spray* (0009NER) prepared by Allen R. Saltus. This site was investigated by Saltus and staff from the UAU during the fall of 1981.

UAU Site # 0018NER	**State Plane Coordinates**
Bordeaux Tug	**2315740 E, 180690 N**

The UAU recorded the presence and location of this small tugboat during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. The remains were located on the shoreline at Point Peter, parallel to the channel, and were only partially exposed during low tide. No further archaeological investigations have been conducted at the site.

UAU Site # 0019NER	**State Plane Coordinates**
Alma	**2315710 E, 180660 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. The site was located perpendicular to the channel and on the shoreline at Point Peter. Donald Bordeaux of Bordeaux Salvage and Construction Company identified the iron hull tugboat as the *Alma*, which he said was constructed in Baltimore, Maryland, in 1869. Historical research, however, has failed to identify an iron-hull tugboat by that name. Beyond recording the presence and location of the wreck, no archaeological investigations have been conducted at this site.

UAU Site # 0020NER	**State Plane Coordinates**
Carl Blades	**2315740 E, 180630 N**

The UAU documented this site during a 1983 survey of lost and abandoned vessels along the Wilmington waterfront **(Figure 73)**. The site was located parallel to the channel and on the shoreline at Point Peter. Donald Bordeaux of Bordeaux Salvage and Construction Company identified the wooden-hull tugboat as the *Carl Blades*. Historical research, however, has failed to identify a vessel by that name. Beyond recording the presence and location of the wreck, no archaeological investigations have been conducted at this site.

UAU Site # 0037NER	**State Plane Coordinates**
Hilton Schooner	**2317701 E, 186132 N**

TAR discovered the Hilton Schooner during a survey of Wilmington Harbor conducted for the USACOE in 1988. The remains of the wooden-hull schooner were located in the Northeast Cape Fear River channel, 650 feet south of the Hilton Railroad Bridge **(Figures 73,86)**. Because of the vessel's location in the navigation channel, the USACOE has focused considerable attention to documenting the shipwreck and developing plans to mitigate the impact on the site of continued operation and

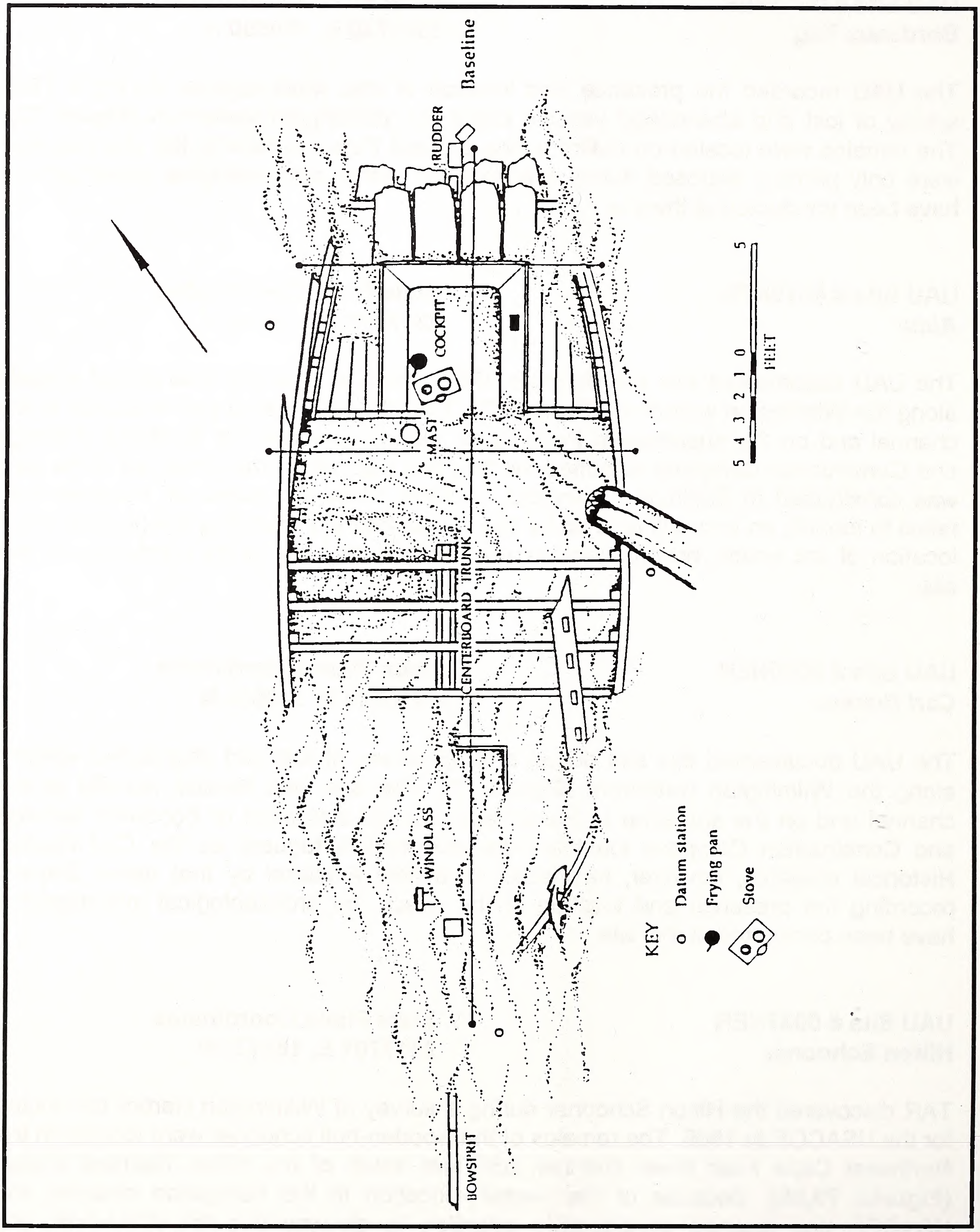

Baseline
RUDDER
COCKPIT
MAST
CENTERBOARD TRUNK
WINDLASS
BOWSPRIT
5 4 3 2 1 0 5
FEET
KEY
Datum station
Frying pan
Stove

Figure 86. Site map of the Hilton Schooner (0037NER) as documented by Tidewater Atlantic Research, Inc., in 1990.

maintenance or future widening and/or deepening of the channel. Subsequent to the discovery of the site during the April 1988 sidescan sonar survey, the USACOE funded further TAR investigations of the site in June 1988, March 1990, and June 1992. In addition, the UAU spent three days examining the site in May 1989 after receiving reports that the wreck was damaged when a ocean-going tug dragged a towing bridle through the site.

A December 7, 1994, report by TAR contained the following description of the wreck site:

> The Hilton Wreck proved to be the remains of a small mid-nineteenth century schooner. The vessel was 37 feet 6 inches in length between perpendiculars at the deck and was constructed with a maximum beam of 14 feet. The shallow draft design accommodated a depth of hold of only 41½ inches. Its draft would have been approximately 3 feet forward and 3 feet 9 inches aft with the centerboard up and approximately 7 feet amidships with the board down. A small 6-foot 3-inch long cockpit aft provided exposed accommodations for those on deck. . . . The 4-foot 2-inch by 4-foot 2-inch hatch forward of the centerboard trunk provided access to the hold for loading and unloading cargoes. The stern appears to have been square and stem was fitted with a fiddlehead.

TAR excavated and measured most of the wreck site during the month-long June 1992 examination of the site. The 1994 report on this project includes detailed descriptions of the various structural components, as well as numerous illustrations, plans, and line drawings documenting the vessel. In 1990 TAR prepared a nomination for the site to the National Register of Historic Places.

UAU Site # 0038NER	**State Plane Coordinates**
Modern Steel Barge	**2317785 E, 185433 N**

The Modern Steel Barge Site was discovered during a survey of Wilmington Harbor conducted by TAR for the USACOE in 1988. The welded-steel barge was found lying along the east bank of the river in 2 to 12 feet of water perpendicular to the channel, directly across from the Dixie Cement Dock **(Figure 73)**. The deck contained two push posts, cable, and mooring cleats.

UAU Site # 0040NER	**State Plane Coordinates**
Winner Skiff	**2315697 E, 182138 N**

The Winner Skiff Site was discovered during a 1992 UAU/USACOE shoreline survey of an area to be affected by a proposed turning basin on the west side of the Northeast

Cape Fear River immediately upriver of Point Peter **(Figure 73)**. The site was revisited and documented during the 1992/93 school year by UAU staff and members of "Baker's Kids," a Pender County educational program for eighth-grade students. Structural elements examined at the site included what appeared to be a section of bottom planking and two stringers. In addition, a short piece of hull planking was recovered from the site. Frames, set on 10-inch centers, were attached to the plank. The frames were attached with 2-inch copper nails clinched over ¼-inch diameter washers, two per plank.

The planking was identified as white cedar, and the frames were white oak. Based on the light frames and use of clinch nails, it was determined that the vessel was a small, shell-built watercraft.

UAU Site # 0044NER	**State Plane Coordinates**
Winner Centerboard Wreck	**2315730 E, 181997 N**

The Winner Centerboard Wreck Site was discovered during a 1992 UAU/USACOE shoreline survey of an area to be affected by a proposed turning basin on the west side of the Northeast Cape Fear River immediately upriver of Point Peter **(Figure 73)**. The site was revisited and documented during the 1992-93 school year by UAU staff and members of "Baker's Kids," a Pender County educational program for eighth-grade students. Several features that protruded above the shoreline beach sediments provided identification of this wooden shipwreck as a sailing vessel, most likely a schooner. Both the centerboard trunk and the stump of a mast were visible at the site. Frame ends, outer planking, and ceiling were also observed at some points in the intertidal zone. Above the high-tide line, sediments covered half of the estimated length of the vessel.

Excavation and probing determined that the centerboard trunk was 14 feet long and consisted of 2-inch-thick side boards, 5½-inch-diameter end posts, and a 2-inch centerboard slot. The trunk stood 3 feet above the ceiling. Based on the placement of the remaining mast, which was directly behind the trunk, and beam measurements taken from frame ends on both sides of the vessel, it was determined that the centerboard trunk was located along the centerline of the vessel rather that being offset to the side of the keel. The mast diameter was 8 inches. The woods used in construction of this vessel were southern hard or yellow pine for the outer planking, ceiling, and mast, and red cedar for the futtocks.

Excavations and probing forward of the centerboard trunk were unsuccessful in uncovering evidence of a forward mast or the stem of the Winner Centerboard Wreck. Artifacts recovered in the overburden and along the shoreline around the shipwreck included bottles and ceramics of a domestic nature that collectively spanned the last two centuries. Remnants of pipe, chain, and fittings represented the industrial component that has existed at the site for several decades.

UAU Site # 0045NER	**State Plane Coordinates**
Token Wreck	**2315727 E, 181983 N**

The Token Wreck Site was discovered during a 1992 UAU/USACOE shoreline survey of an area to be affected by a proposed turning basin on the west side of the Northeast Cape Fear River immediately upriver of Point Peter **(Figure 73)**. The site was revisited and documented during the 1992/93 school year by UAU staff and members of "Baker's Kids", a Pender County educational program for eighth-grade students. Excavation in the stern of the this site produced five yellow, metal gaming tokens, thus providing the site name.

Limited structural information was collected from the Token Wreck. The aft end of the vessel consisted of a transom timber and longitudinal transom planks, which appeared to form a raking stern. Probing determined that the beam of the vessel measured 10 feet and also indicated that there were no structural elements within the hull, such as a centerboard trunk or engines. Frame, outer planking, and transom timber were all made of southern hard or yellow pine.

UAU Site # 0046NER	**State Plane Coordinates**
Chem Serve Boat	**2318034 E, 187661 N**

The UAU first noted this site during the 1981 investigation of the steamboat *Spray* (see site description for *Spray*, 0009NER). The remains of this wooden boat were exposed at low tide in the mud flats just east of site 0014NER **(Figure 73)**. The location of this vessel was recorded on a 1937 USACOE survey map of the mouth of Smith Creek. No further archaeological investigations have been conducted at the site.

Discussion and Conclusions

Thirty-five new sites were documented during the fieldwork portion of the Cape Fear River Comprehensive Study. All but two of those sites, Battery Island Boiler (0085CFR) and Snow's Marsh Training Dike (0087CFR), were vessel remains. When these thirty-three new shipwrecks are added to the fifty-nine previously recorded sites within the project corridor, a number of observations and conclusions can be made concerning vessel type, distribution, cause of loss, and site significance. In addition, conclusions can be drawn concerning the effectiveness of the survey methodology and organization and the primary and secondary impacts that the proposed channel deepening will have on the shipwrecks located within the project corridor. Finally, recommendations can be made regarding further investigation and mitigation of those sites that may be directly affected by proposed construction.

Vessel Type

The largest class of vessels documented by the survey is the barge. A total of forty-five barges were located in the study area—forty-three constructed of wood and two made of steel. These sites exhibited a remarkable variety of designs and construction techniques. Several of the barges—for example, hopper barges used in dredging operations and those that supported steam-crane machinery—were built to perform specific functions. It must be assumed that the rest were used to carry various types of cargo. Photographs of the Wilmington waterfront from the late nineteenth and early twentieth centuries often show wooden barges loaded with lumber or barrels of naval stores.

Although barges have always been numerous and performed a vital role in the harbor and on the river, it is extremely difficult to document the history of an individual barge. Based on the condition of the barge sites relative to the condition of other identified vessels in the survey area, however, it is likely that most of these barges were constructed during the period 1875 to 1925.

Tugboats represent the second-largest class of vessels documented within the study area. Fourteen tugboats were identified. Those vessels range in size from 50 to 84 feet and include three steam-powered tugs, eight diesel-powered tugs, and three examples in which it was not possible to determine the original means of power. Twelve of the fourteen tugboats had wooden hulls, and two were built of iron or steel. Historical records indicate that several of the tugboats were originally equipped with steam engines and were later converted to diesel power. The *Stone 5* (0010CFR), originally named the *Sadie E. Culver*, was built in Whitehaven, Maryland, in 1896 as a 35-ton schooner and was later converted to diesel power, at first for use as a fishing boat and then as a tugboat.

Historically, tugboats served several functions on the river and, of course, their use continues today. Tugboats were used to assist sailing ships and large powered ships up and down the Cape Fear River from Wilmington to the ocean. They were also used to tow or push barges both up and down the river above Wilmington and to other ports along the coast.

Six paddlewheel steamboats were located in the study area--two sternwheelers, three sidewheelers, and one, the Fort Caswell Steamer (0084CFR), of unknown engine arrangement, though thought possibly to be the sidewheel steamer *Fayetteville*. It is interesting to note that two of the sidewheel steamboats—the *Kate* (0082CFR) and the *Waccamaw* (0001CFR), both New York-built vessels—were used during the Civil War, the former as a blockade-runner and the latter as a Union gunboat. The third sidewheeler, *Spray* (0009NER), might also have seen use during the Civil War as the Confederate steamer *Caswell*, although historical records on the *Caswell* are too vague to confirm this with certainty. The two sternwheelers *A. P. Hurt* (0003CFR) and *H. G. Wright* (0027CFR) were more typical of the steamboats used on the Cape Fear River, particularly above Wilmington.

The first steamboat to come to Wilmington was the *Prometheus*, a sternwheeler built by Otway Burns in Beaufort, North Carolina, in 1818. The last documented paddlewheel steamboat used on the river was the *Thelma*, which operated until 1939 (Johnson 1977:33-35, 95-96). In the period between these dates, particularly during the last half of the nineteenth century, paddlewheel steamboats were the main means for transporting goods and passengers up and down the Cape Fear River and its major tributaries, the Black River and the Northeast Cape Fear River. Steamboat service also extended up some of the smaller tributaries such as Town Creek, Smiths Creek, Long Creek, and Moores Creek. Because of the narrow and crooked nature of these rivers and creeks, sternwheel boats were more prevalent than sidewheelers, inasmuch as they had narrower beams. The typical Cape Fear River steamboat carried cargo in the hold and on the deck and had cabins and a galley for passengers above the main deck. Often the steamer would tow one or more barges loaded with cargo.

During the Civil War the Confederate government constructed and launched two ironclad gunboats in Wilmington, the *North Carolina* and the *Raleigh* (Watson 1992:75-77). Although the ironclads saw only limited military service, they served as important deterrents to Federal attempts to enter the Cape Fear River. The UAU examined the remains of both gunboats during the Cape Fear River Comprehensive Study. The CSS *North Carolina* (0052CFR) was discovered next to Battery Island, where the vessel had been stationed as a floating battery until shipworm damage caused it to take on water and sink. The CSS *Raleigh* (0003NEI) was found on the inside of New Inlet, where the ironclad grounded on a shoal after briefly engaging the Union blockading fleet off Fort Fisher.

Nine wooden-hull launches, ranging from 25 feet to 34 feet in length, were documented in the study area. The term launch is used here to mean a large, open motorboat. These boats could serve a variety of functions, including fishing, carrying cargo or passengers, or towing barges.

Surprisingly, despite the prevalent use of sailing vessels on the Cape Fear River during the eighteenth, nineteenth, and early twentieth centuries, only four sail-powered boats were found in the project corridor. All four of those vessels were schooner-rigged; however, they varied dramatically in hull size and design. Those sites included the *Belfast* (0081CFR), a 181-foot-long, early twentieth-century schooner barge; the Sugarloaf Sharpie (0075CFR) a 30-foot-long, flat-bottomed sailing vessel; the Hilton Schooner (0037NER), a 37-foot-long, mid-nineteenth-century centerboard schooner; and the Winner Centerboard Wreck (0044NER), a small centerboard schooner of undetermined dimensions.

Four skiffs, small boats less than 20 feet in length, were located in the study area. Those flat-bottomed boats were probably powered by oars and were most likely built locally during the early twentieth century.

Ferries have been in operation at various locations on the Cape Fear River since the early eighteenth century. The longest-lived of those ferry operations was the Market Street ferry, which operated from the colonial period up to the 1930s. Until the twentieth century the Market Street ferry was a barge-type vessel propelled by oars. In the early 1900s a gasoline motor launch was used to pull the barge across the river. Finally, in 1919 a diesel-powered ferryboat, the *John Knox*, was put into service. The remains of the *John Knox* (0016CFR) represent the only ferryboat located in the study area.

Other miscellaneous vessel types found in the study area include the *Blanchard* (0002CFR), an early twentieth-century, steel-hulled yacht; the *Minnesota* (0013CFR), a wooden-hull, diesel-powered fishing vessel built in 1910; and a floating drydock (0021CFR). Four additional sites were either too deteriorated or too deeply buried in the mud for the vessel type or its use to be identified.

Table 2-3.
Types and number of sites in CFRCS Survey Area

Barges	45
Tugboats	14
Launches	9
Paddlewheel steamboats	6
Schooners	4
Unknown type	4
Ironclad gunboats	2
Ferries	1
Yacht	1
Fishing boat	1
Drydock	1
Boiler	1
Training Dike	1
TOTAL	94

Causes of Vessel Loss and Shipwreck Distribution

Abandonment is the predominant cause of loss of vessels located in the study area and is a major factor affecting the distribution of shipwreck sites. The practice of abandoning vessels is a long-standing tradition and one that has been noted elsewhere in North Carolina and other regions of the country. In his study of shipwrecks in the Patuxent River, a tributary of the Chesapeake Bay, Donald Shomette states: "Abandonments of old or useless vessels . . . provide the largest category of historic (and probably prehistoric) vessel resources in the Chesapeake Tidewater. Such vessels were normally abandoned after having outlived their utility or when they became economically impossible to maintain. . . ." (Shomette 1995:7)

This same pattern is certainly confirmed by the distribution of shipwreck losses along the Cape Fear River. The vast majority of sites in the project corridor, eighty-three of ninety-two (90 percent), were located within a four-mile stretch of river centered at the foot of Market Street in downtown Wilmington (see Table 2-1 and 2-2). Because Wilmington has been the focal point of maritime activity on the Cape Fear River since the mid-eighteenth century, it is not surprising that so many shipwrecks are located along the city's waterfront. Of the eighty-three shipwrecks in the Wilmington vicinity, seventy-three (88 percent) were vessels abandoned along the shoreline with the majority of those—sixty-two—located in the intertidal zone along the west banks of the Cape Fear and Northeast Cape Fear Rivers opposite downtown Wilmington. The reason that vessels were abandoned along Eagles Island and the western shore of the Northeast Cape Fear River is twofold **(Figure 87)**. First, although that side of the river was the scene of considerable commercial activity—including turpentine distilleries, naval-stores warehouses, lumberyards, and shipyards—during the nineteenth and early twentieth centuries, a decline in those industries, starting in the 1930s, left that shoreline virtually deserted. Second, the natural deepwater channel of the river is along the Wilmington waterfront, and, conversely, the western side of the river, along Eagles Island, is the shallow side. Consequently, with the decline in maritime activity along the western shoreline, those seeking a spot to abandon vessels chose the shallow waters along Eagles Island and along the western shore of the Northeast Cape Fear River above Point Peter. In those locations abandoned vessels would not create a hazard to navigation or impede waterfront enterprises. A good example of that practice is the large number of abandoned tugboats (nine of the fourteen tugs documented in the entire study area) located in the vicinity of the Stone Marine Railway on Eagles Island. According to Messrs. Russell and Harris Stone, former owners of Stone Towing Company, those vessels were abandoned during the 1930s and 1940s because of the economic decline brought on by the Great Depression and a general trend toward larger diesel-powered tugboats as the size of ships coming up the river increased. Some of those boats were not intentionally abandoned but rather were "laid up" in anticipation of an economic recovery that never came. Gradually, through lack of use and maintenance, the vessels deteriorated past the point of repair and sank at their moorings, often next to a dilapidated dock.

Wooden barges made up nearly half of the shipwreck population in the study area. Although a few barges in deep water, such as the Walker Barge (0068CFR), may have been victims of accidental sinking, most of them were found abandoned in the intertidal zone along the shoreline. In some cases, particularly in the vicinity of the now inoperative R. F. Hamme and R. R. Stone marine railways, derelict barges were filled with rubble and incorporated into the construction of wharves and bulkheads (**Figure 88**).

Although no longer prevalent, the tradition of abandoning old or useless vessels is still in practice. As recently as 1984, the Grand Banks schooner *Harry Adams*, which had been a floating display at Wilmington's Chandler's Wharf, was taken a short distance up the Cape Fear River and pushed into a mudbank in Horseshoe Bend to join numerous other vessels discarded in that now-bypassed portion of the river channel.

Of the ten sites that were found in deep water along the Wilmington waterfront, three are known to have been lost as a result of accidents—the *A. P. Hurt* (0003CFR) and the *Blanchard* (0002CFR) during storms and the *John Knox* (0016CFR) by being forced onto a piling during high water (**Figure 89**). It is likely that most, if not all, of the other vessels lost in deep water were also victims of accidental sinking.

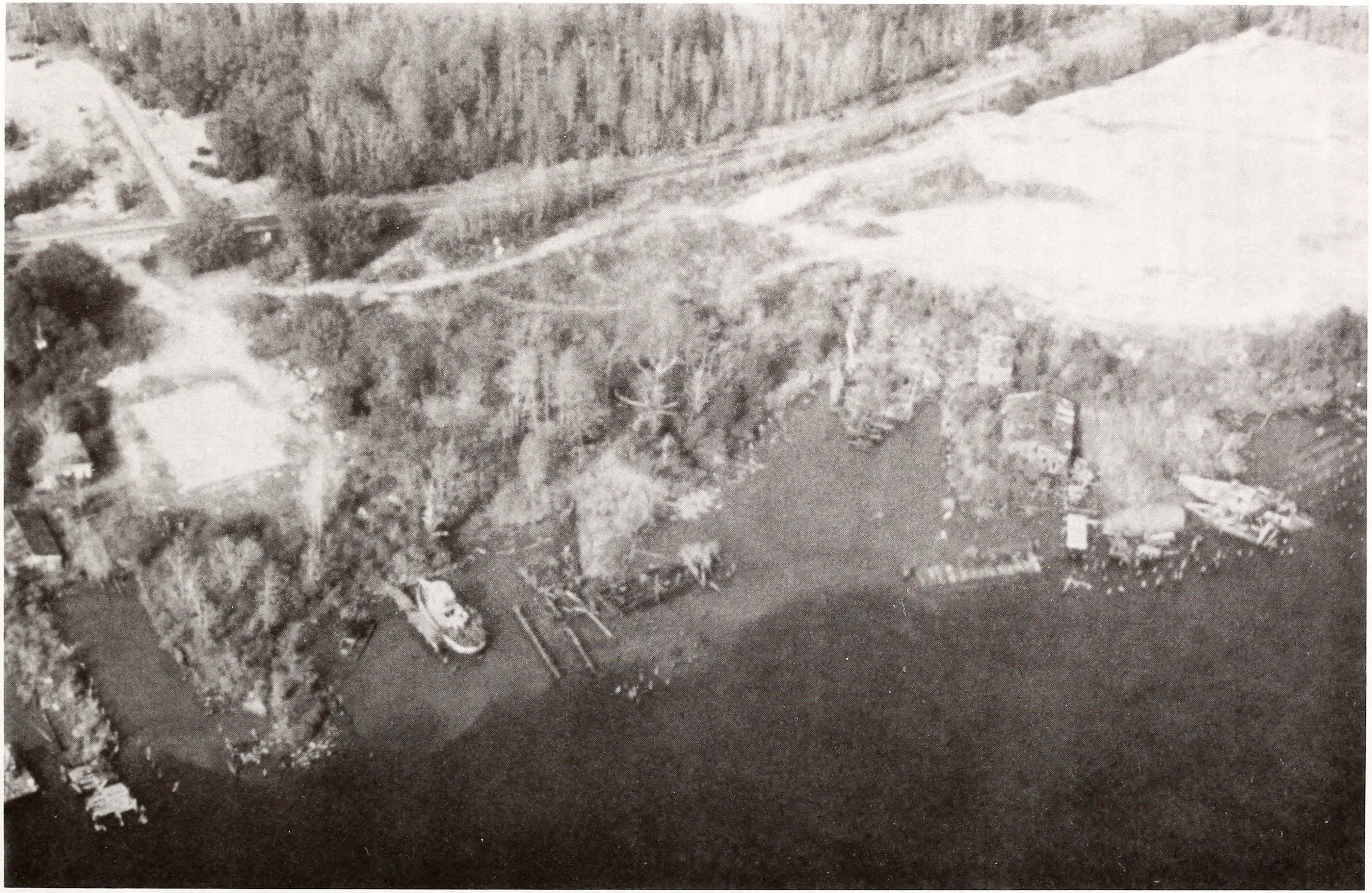


Figure 87. Aerial photograph taken during the 1980s showing the inoperative R. R. Stone and R. F. Hamme marine railways on Eagles Island. The following sites, 0008CFR, 0009CFR, 0010CFR, 0011CFR, 0012CFR, 0021CFR, 0027CFR, 0028CFR, 0032CFR, 0033CFR, 0041CFR, and 0042CFR, can be seen in the photograph.

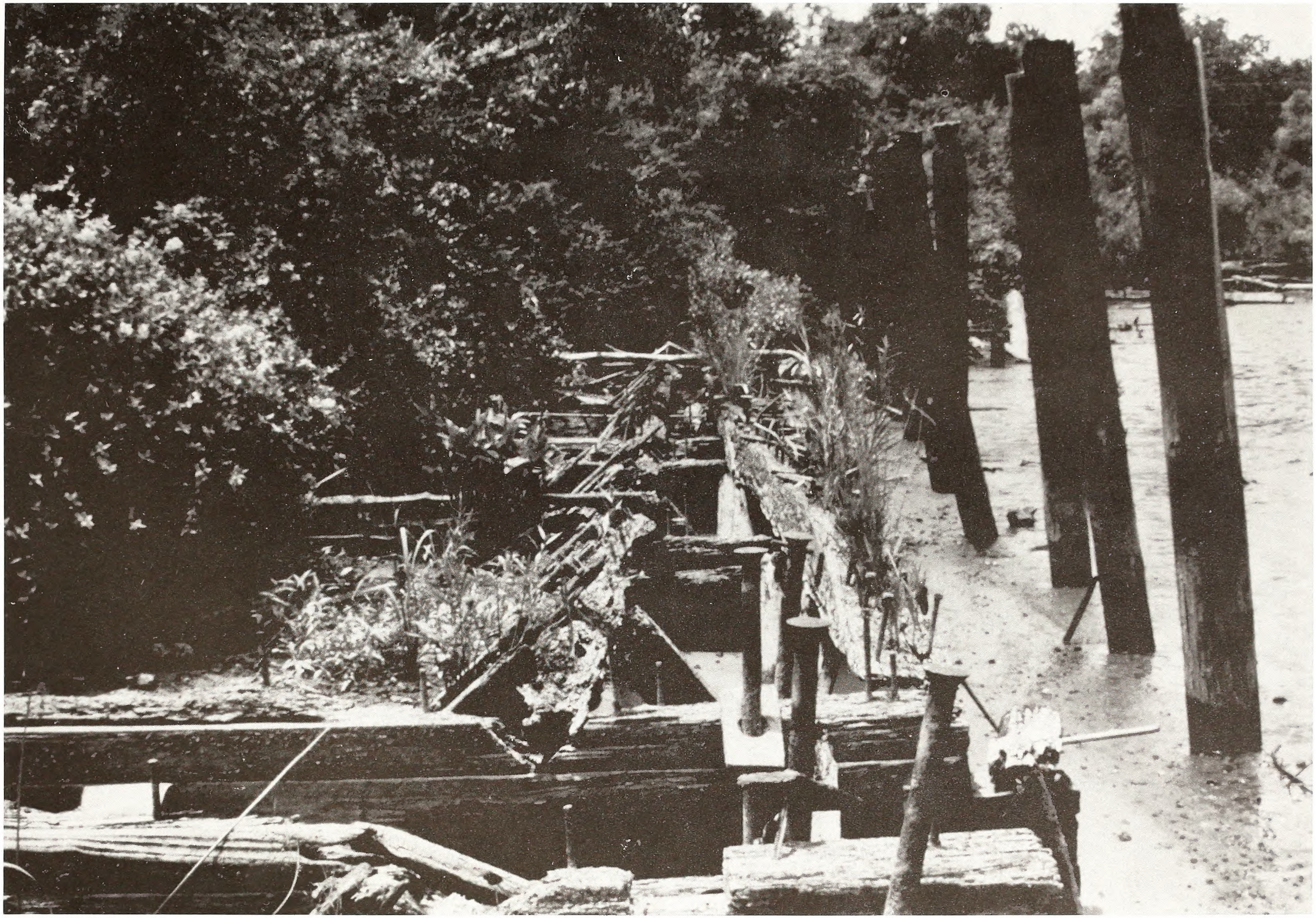


Figure 88. Hopper barge (0007CFR) serves as a bulkhead at R. F. Hamme Marine Railway which operated from 1915 to 1946 on Eagles Island.

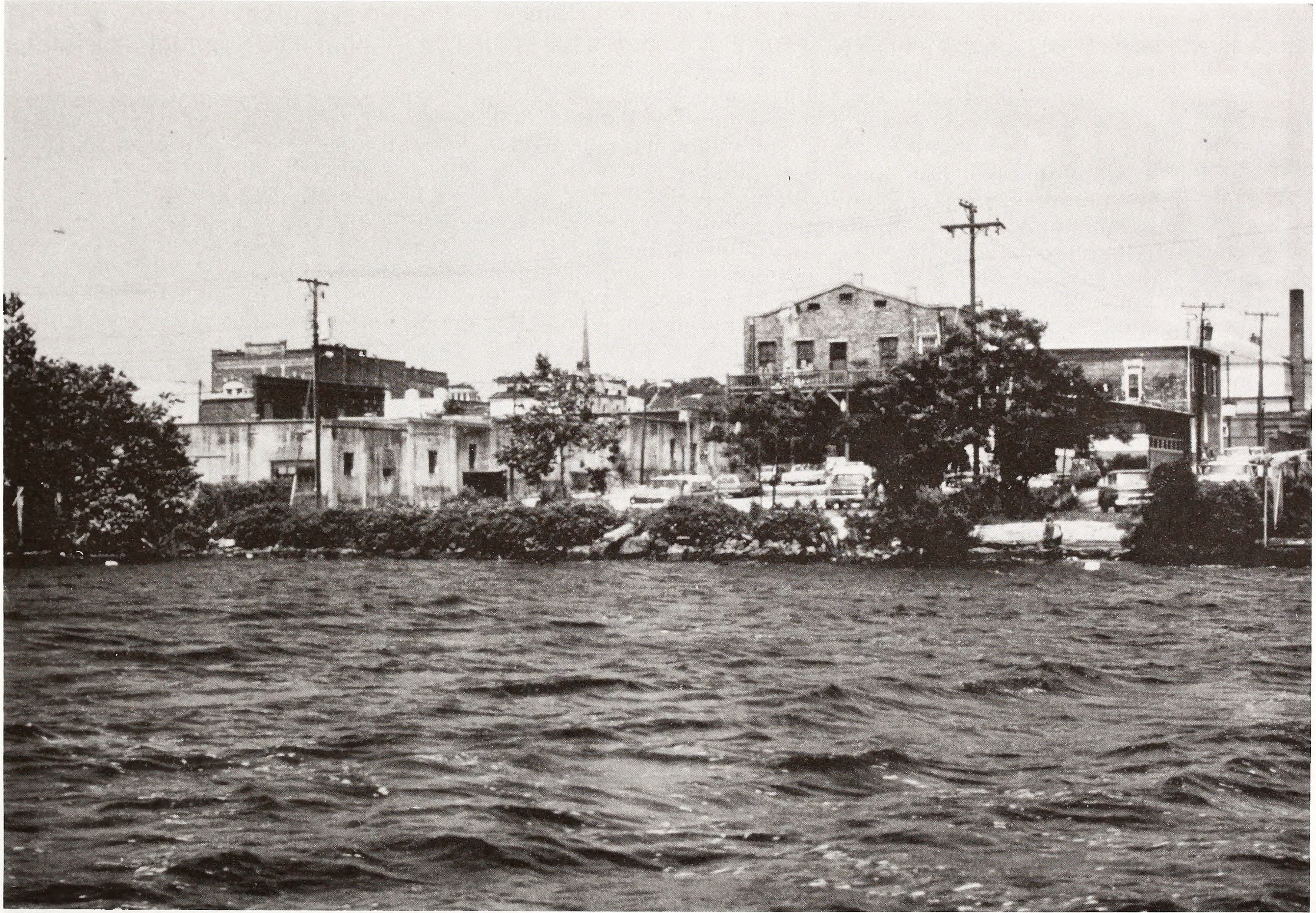


Figure 89. Wilmington shoreline at Orange Street. The white buoys mark the ends of the *Blanchard* (0002CFR) which sank at its mooring during a storm in the 1950s.

In the portion of the study area downriver from Wilmington, the pattern of vessel abandonment versus accidental loss was reversed. There, only three of the nine shipwreck sites were found where they had been abandoned along the shoreline. Of the six sites in deep water, three—the *Raleigh* (0003NEI), the *North Carolina* (0052CFR), and the *Kate* (0082CFR)—were lost during the Civil War, though not from direct military action. The *Raleigh* grounded on a shoal inside New Inlet after engaging the Union fleet off Fort Fisher. The *North Carolina* sank after taking on water from shipworm damage while on station near Southport at the river's mouth. The *Kate* also sank near Southport after hitting an unidentified obstruction while steaming downriver in preparation for running the Union blockade. The three remaining deepwater sites are also located in the Southport vicinity near the river's mouth. Of those, the *Belfast* (0081CFR) is known to have sunk after taking on water in a storm, and it is presumed that the Fort Caswell Steamer (0084CFR) and NOAA #4 Barge (0038CFR) were also lost in accidents. Three vessels were found abandoned below Wilmington—the Brunswick Town Barge (0086CFR), the Campbell Island Wreck (0083CFR), and the Sugarloaf Sharpie (0075CFR). The Campbell Island Wreck was found adjacent to the late nineteenth/early twentieth century landing on Campbell Island, and the Brunswick Town Barge was located near a wharf complex shown on a 1927 chart of the Cape Fear River. The Sugarloaf Sharpie, however, could not be associated with any known historical maritime activity.

Site Significance

The accepted criteria for determining the significance of an archaeological site is its eligibility for listing in the National Register of Historic Places. Although, specific recommendations will be made concerning the National Register eligibility of sites threatened by the proposed deepening project, it is not possible within the scope of this report to make a determination of eligibility for all ninety-two shipwreck sites located in the Cape Fear River Comprehensive Study Area. Nevertheless, thirty-nine of those sites have already been placed on the National Register. By applying the criteria used for those thirty-nine vessels, it is possible to reach some general conclusions regarding the eligibility status of the remaining fifty-three shipwrecks.

In 1983 the UAU conducted a survey of shipwreck sites located within the boundaries of the Wilmington Historic District, and in 1985 thirty-seven shipwreck sites were added to the National Register of Historic Places by means of an addendum to the Wilmington Historic District National Register Nomination. The National Park Service of the U.S. Department of Interior listed those thirty-seven sites in the 1990 Federal Register publication Abandoned Shipwreck Act: Final Guidelines; Notice and determined that all the sites were of "national significance." The following excerpt from the "1985 Addendum to the Wilmington Historic District" describes the significance of the shipwreck sites within the boundaries of the historic district and the specific criteria used to add the sites to the National Register.

> The extensive collection of lost and abandoned vessels located along the Wilmington waterfront is unique in North Carolina. No other port or body of water in the state contains such a concentrated number of relatively intact shipwreck sites. Since Wilmington has long been North Carolina's major sea and river port it is not surprising that a large number of wrecks are located in the harbor. However, it is extremely fortunate that these vessels were abandoned along a portion of shoreline where maritime activity was on the decline. This has meant that the sites have remained virtually undisturbed by subsequent harbor and river development and subject only to natural deterioration. Additionally, the research value of these sites is enhanced by the simple fact that they can be visually examined and photographed during periods of low tide. This is a tremendous asset in an area where underwater visibility averages one-foot.
>
> The shipwreck sites located during the 1983 Wilmington Waterfront Survey meet criterion C (embody the distinctive characteristics of a period and method of construction) and criterion D (have yielded, or are likely to yield, information important to history).
>
> These 37 shipwreck sites represent a cross section of vessel types used on the Cape Fear River from the mid-nineteenth to the early-twentieth century. As a class of workboats, these riverboats, tugboats, ferries, and barges, made significant contributions to the development and expansion of Wilmington. Unfortunately, plans and records documenting the construction of these vernacular craft are extremely difficult to locate and for the most part are nonexistent. Likewise, contemporary literature on naval and marine architecture generally ignores the small utilitarian craft of the harbors and rivers in favor of large ocean going military and merchant ships. As a result the collection of shipwrecks found in the Wilmington harbor represents a unique repository of information detailing various aspects of marine architecture and ship's construction. In addition, these vessels contain a remarkable collection of well-preserved machinery including: 12 steam engines, 8 boilers, 4 early diesel engines, as well as an assortment of pipes, valves, and fittings.
>
> Wilmington was, and remains, a port city. The residences and commercial buildings within the existing historic district were for the most part, built by people involved in maritime trade and commerce. It is extremely appropriate therefore that these vessels be included as an integral and meaningful part of this district (Lawrence 1985).

In addition to sites located within the Wilmington Historic District, twenty-one other shipwrecks located in southeastern North Carolina were added to the National Register of Historic Places in 1985 as the Cape Fear Civil War Shipwreck District. Although most of those wrecks are located in the ocean waters off the Cape Fear coast, one—the CSS *Raleigh* (0003NEI)—is located within the study area. The following extract from the 1985 Cape Fear Civil War Shipwreck District nomination describes the significance and specific National Register criteria used to nominate the *Raleigh* and the other Civil War shipwrecks included in that district.

> Throughout history ships have been one of man's most elaborate artifacts, in which design and build reflect specific needs. Through the study of ships, insight can be gained into the economical and social mandates of the society in which they were built and the industrial technology available at the time of construction. Shipping was of paramount importance during the Civil War since the vast majority of both raw materials and manufactured goods, necessary to sustain the Confederate war effort, were transported across the Atlantic.
>
> Today the Cape Fear area boasts the largest collection of Civil War shipwrecks anywhere in the world. This group represents the full range of rapidly evolving merchant vessels used to elude the Union naval blockade, as well as a compliment of naval warships involved either in restricting or assisting merchant traffic. The physical remains of these vessels preserve important details concerning the transition in naval architecture and technology from sail to steam and wood to iron.
>
> Artifacts collected from the Cape Fear Civil War shipwrecks are often well-preserved and closely dated. As a group these artifacts can shed light on military and civilian activities during the war. When conserved and placed in museums, these artifacts serve as tangible reminders to highlight historical awareness. As sport diving gains popularity, the educational potential of wreck sites themselves can be developed through the use of interpretive maps and underwater trails.
>
> The Cape Fear Civil War Shipwreck District preserves a physical record of an important part of the United States history. The shipwrecks within it provide the means to more fully understand the Civil War period through the development and utilization of their historical, archaeological, educational, and recreational potential.
>
> The Cape Fear Civil War Shipwreck District is significant according to the following criteria:
>
> A. It is associated with events that have made a significant contribution to the broad patterns of history in North Carolina and the nation. Blockade running during the American Civil War provided the lifeline of international commerce so vital to the Confederacy's war efforts. Tremendous energies, money, and time were spent promoting and

protecting this trade, while Union efforts attempted to restrict it. As the war progressed many southern ports were effectively closed so that by 1863, Wilmington, North Carolina, and the Cape Fear area, became the focus of blockade running activities.

C. It embodies distinctive characteristics of a period and method of construction whose components may lack individual distinction. This group represents vessels built from 1852-1864, a period in which significant advances were being made in marine technology. The merchant vessels collectively trace the evolution of the classic blockade-runner, the fastest and most efficient steamship of its day. Union and Confederate military vessels reflect major innovations during the dawn of modern naval warfare.

D. It is likely to yield information important to the nation's history and to marine construction (Wilde-Ramsing 1985).

Most of shipwrecks in the study area would meet the same National Register criteria as the thirty-seven sites included in the 1985 Addendum and would presumably be eligible as part of an expanded Wilmington Historic District or a new shipwreck district. Additionally, because of their association with the Civil War, the wrecks of the CSS *North Carolina* (0052CFR) and the blockade-runner *Kate* (0082CFR) could be added to the National Register as an addendum to the Cape Fear Civil War Shipwreck District.

Whereas most of the barges, tugboats, and other vernacular craft located in the study area qualify for National Register status as supporting elements of a district, one of the shipwrecks—the Hilton Schooner (0037NER)—has been determined eligible as an individual property. The following shipwrecks are also considered of potential significance for eligibility as individual sites under criteria A, C, and D: the *Waccamaw* (0001CFR), the *A. P. Hurt* (0003CFR), the CSS *North Carolina* (0052CFR), the Sugarloaf Sharpie (0075CFR), the *Kate* (0082CFR), and the CSS *Raleigh* (0003NEI). Other sites that may be eligible for an individual nomination are the *Argonauta* (0015CFR), the *H. G. Wright* (0027CFR), the *Stone 1* (0037CFR), the *Spray* (0009NER), and the Winner Centerboard Wreck (0044NER).

Finally, it is possible to determine that the two non-shipwreck sites located in the study area—Battery Island Boiler (0085CFR) and Snow's Marsh Training Dike (0087CFR)—are not eligible for the National Register.

The Battery Island Boiler (0085CFR) was apparently discarded in its present location and has no association with a larger site. While the boiler is a well-preserved piece of steam equipment, as an isolated find with no archaeological or historical context it has to be considered ineligible for listing in the National Register.

The USACOE constructed the Snow's Marsh Training Dike (0087CFR) along the east side of the river channel in the 1890s. The designers hoped that the dike would concentrate the currents in that reach of the river and assist in maintaining the desired water depth. By 1897 the USACOE abandoned attempts to maintain the nearly two-mile-long dike. The methods used in constructing the training dike are well documented in historical reports, and charts exist showing its location and configuration. Consequently, it is felt that additional archaeological investigation would produce little new information about the structure.

Interagency Cooperation

The successful completion of the fieldwork portion of the Cape Fear River Comprehensive Study resulted in large measure from the total cooperation, and close coordination, between the USACOE and the UAU. Fieldwork responsibilities were divided between the two agencies to take maximum advantage of the human and equipment resources available to the USACOE and the UAU.

For decades the USACOE has conducted highly controlled hydrographic surveys of the Cape Fear River. The crews of the corps survey vessels *Wanchese* and *Gillette* have the equipment necessary to collect the survey data, and they are intimately familiar with the various ranges of the river channel and the location of appropriate transponder stations. Likewise, the staff in the Navigation Branch at the USACOE's main office in Wilmington has the expertise and equipment to perform post-survey processing of field data and to produce highly accurate, computer-generated survey maps. It was, therefore, a relatively simple task for the USACOE survey crews to adapt their equipment to conduct the initial magnetometer survey and for the office staff to produce detailed magnetic contour maps of each priority area.

The UAU brought to this project an extensive knowledge of the maritime history of the Cape Fear River and decades of experience in conducting remote sensing magnetometer surveys and the investigation and documentation of underwater archaeological sites. Based on information gathered during the historical/cartographic research phase of the project, the UAU chose and set the boundaries for the priority areas. Once the USACOE had conducted the initial magnetometer surveys and produced the magnetic contour maps of each priority area, it was then possible for the UAU field crew to focus its attention on the identification and investigation of individual magnetic targets.

The interaction between the two agencies went well beyond simply performing tasks and exchanging information. For example, when the USACOE's magnetometer broke down near the beginning of their survey, it was able to borrow the UAU's magnetometer to complete the project. Similarly, the UAU installed one of the USACOE's positioning systems in the unit's survey vessel to assist in relocating the magnetic targets.

Benefits of Cartographic and Historical Research in Conducting Fieldwork
As stated previously, the intensive cartographic and historic study that preceded fieldwork was instrumental in the choice of the location and boundaries of priority survey areas. That research had additional benefits. In some cases historic charts gave the identity and location of historic shipwrecks. For example, the shipwrecks CSS *North Carolina*, *Kate*, and *Belfast* are all shown of various charts in the Southport vicinity. That fact allowed project personnel to design survey boundaries to encompass the location of those sites. Once the USACOE completed this initial magnetometer survey, it was possible to compare, and in some cases match, the anomalies shown on the magnetic contour maps with the shipwreck sites shown on the historic charts.

In a similar manner, the information on historic shipwrecks in the Cape Fear River gathered prior to the survey was beneficial in attempting to identify new sites found during the fieldwork. For example, by consulting the historical shipwreck accounts it was possible to identify the Fort Caswell Steamer (0084CFR) tentatively as the *Fayetteville*, a steam tugboat that was lost off Fort Caswell in 1853.

Something should be said about the disparity between the number of historically documented shipwrecks in the study area and the number of known shipwreck sites. For the areas incorporated by the Cape Fear River Comprehensive Study, there are 291 historically documented shipwrecks in the UAU's research files, which consist primarily of references from contemporary newspaper accounts and federal shipping documents. As has been mentioned earlier, 92 shipwreck sites have been archaeologically documented in the study area. Of those 92 sites, however, only 11 can be identified from the 291 historically documented shipwrecks. These numbers raise two questions: Why is there no historical record of the 81 other shipwreck sites found in the study area? And where are the other shipwrecks that were historically documented in the study area? The answer to the first question is related to the predominant cause of vessel loss in the study area–abandonment. Shipwrecks that are recorded in the historical record tend to be vessels that came to a violent end—for example, destruction during a storm, collision, fire, or boiler explosion. By contrast, vessel abandonment is not an activity that is likely to be recorded in contemporary newspaper accounts or other historical documents. Consequently, it is not surprising that the names of the numerous vessels abandoned along the Wilmington waterfront and elsewhere in the river are not found in the UAU historic shipwreck files.

In addressing the question of why so few of the 291 historically documented shipwrecks have been found in the study area, a number of factors must be considered.

1. The historical accounts may be inaccurate. Some of the vessels may never have been lost or may have sunk in an entirely different vicinity.

2. The historical accounts are so vague (for example, "lost in Cape Fear") that a shipwreck may have occurred in this region but outside the boundaries of the study area.

3. The vessel may have been refloated immediately after sinking or salvaged at some later date and is no longer in the study area.

4. The shipwreck may have occurred in the Cape Fear River study area but outside the areas investigated during this or other survey projects.

5. Insufficient information exists to positively identify a site as a particular historically known shipwreck. For example, the Fort Caswell Steamer may well have been the steam tugboat *Fayetteville*; however, there is insufficient site data to confirm that identification.

Impacts and Recommendations

In determining the potential effect that the proposed channel deepening would have on submerged archaeological sites, two specific areas were considered: 1) the river bottom in the existing channel that will be deepened by the dredging project and 2) the side slope that will be altered by the channel deepening.

Channel Bottom

Initial dredging of the Cape Fear River in the nineteenth century concentrated on maintaining a channel through the ocean bar and cutting through river shoals in order to connect areas of naturally deep water. Those early efforts focused on maintaining a channel of at least 12 feet through the shoals to Wilmington, and by 1881 the project had been expanded to a depth of 16 feet. Over the next century the authorized depth was gradually increased until the currently maintained channel depth of 40 feet was achieved over the ocean bar to Battery Island, with additional depths of 38 feet from Battery Island to the Cape Fear Memorial Bridge in Wilmington, 32 feet from that point to the Hilton Railroad Bridge over the Northeast Cape Fear River, and 25 feet above the Hilton Bridge to the upper end of the project in the Northeast Cape Fear River. An examination of hydrographic survey maps and navigation charts compiled over the past 170 years clearly shows that the navigation channel from the Snows Marsh Range to the Anchorage Basin was historically much shallower than the currently maintained depths. Consequently, it is extremely unlikely that significant archaeological remains are located in the navigation channel for that portion of the river. Therefore, no further archaeological survey of the navigation channel is recommended from the Snows Marsh Range to the Cape Fear Memorial Bridge in Wilmington. It appears, however, that certain ranges of the river may have occurred naturally at or below the current project depth and therefore were not affected by dredging activities. Those areas include: portions of the Northeast Cape Fear River from 1,000 feet above to 1,500 feet below the Hilton Railroad Bridge; downtown Wilmington from Grace Street to Orange Street; and portions of the Lower Swash, Battery Island, Southport, Baldhead-Caswell, and Smith Island ranges near the river's mouth. The presence of the Hilton Schooner (0037NER), a National Register-eligible shipwreck site dating to the 1880s that is located within the channel boundaries 650 feet south of the Hilton Railroad bridge in 34 feet (MLW), clearly demonstrates the potential for locating significant archaeological resources in the river channel in those ranges of the river not subject to past dredging.

From 2,500 feet above the Hilton Railroad Bridge to the Cape Fear River Memorial Bridge, the Northeast Cape Fear and Cape Fear Rivers have been the subjects of intensive bank-to-bank archaeological surveys (Lawrence 1985: Saltus 1982; TAR 1988). In those portions of the rivers, only one shipwreck, the Hilton Schooner, was confirmed to be in the navigation channel. A second wreck, the Walker Barge (0068CFR), may be in the channel, but further study of the site is needed to determine the vessel's exact position on the river bottom. Although specific recommendations for additional investigations will be made for the Walker Barge, the Hilton Schooner, and six other shipwrecks situated near the edge of the navigation channel along the Wilmington waterfront, no further archaeological survey work is recommended for the navigation channel from the Cape Fear Memorial Bridge to the end of the project on the Northeast Cape Fear River.

On the lower portions of the Cape Fear River, specifically the Lower Swash, Battery Island, Southport, Baldhead-Caswell, and Smith Island ranges, there are portions of the navigation channel that may never have been dredged inasmuch as they feature natural depths below the maintained depth of 40 feet. During the Cape Fear River Comprehensive Study, a detailed magnetometer survey was conducted of the Lower Swash Range, and no magnetic anomalies were encountered in the navigation channel. Magnetometer surveys of the Battery Island, Southport, and Baldhead-Caswell ranges were not conducted as part of this study or any previous survey, however. It is recommended that a detailed examination of the dredging history of the Battery Island, Southport, and Baldhead-Caswell ranges be made in order to determine the portions of the navigation channel in those ranges that have never been dredged. In previously undredged areas of those ranges, a magnetometer survey should be conducted to determine if potentially significant magnetic anomalies are located in the navigation channel.

Side Slope

The proposed deepening of the navigation channel will result in an increase in channel side slope. The amount of bottom disturbance associated with an increase in side slope, and the resulting effect on nearby shipwrecks, depends on a number of factors, including the consistency of bottom sediments (for example, sand versus mud), the amount of deepening, the natural depth of the surrounding river bottom, and the depth of a shipwreck and its horizontal distance from the channel. The USACOE has determined a side slope of 5:1 for the lower portions of the river (Baldhead Shoal Range through Battery Island Range) and a 3:1 slope for the remainder of the navigation channel (Lower Swash Range to the 25-Foot Project). In light of those projected side slopes, for the purpose of this study a shipwreck is considered to have a high potential for disturbance if it is located within 200 feet of the channel prism for the areas with a 5:1 slope or within 120 feet of the channel prism for areas with a 3:1 slope.

Baldhead Shoal Range through Battery Island Range

In examining known shipwreck sites in the lower portion of the river (Baldhead Shoal Range through Battery Island Range), only one, the Fort Caswell Steamer (0084CFR), comes close to the 200-foot distance from the channel prism. Because the Fort Caswell Steamer is located 230 feet from the Southport Range channel prism, however, and is in water 35 to 54 feet deep, it will not be affected by the deepening project, and no further archaeological investigation of that site is recommended as part of this project. The only other recorded shipwreck in this portion of the river is NOAA #4 Barge (0038CFR), which is 800 feet from the Battery Island Range channel.

Lower Swash Range to the Cape Fear Memorial Bridge

As seen in the following list, there are no shipwreck sites within, or near, 120 feet of the channel prism in the river ranges from Southport to the Cape Fear Memorial Bridge.

Table 2-4.
Submerged Shipwreck Sites between Southport and the Cape Fear Memorial Bridge in Wilmington

Site	Range	Distance from channel
North Carolina (0052CFR)	Lower Swash	650 feet
Belfast (0081CFR)	Lower Swash	500 feet
Kate (0082CFR)	Lower Swash	270 feet
Raleigh (0003NEI)	Horseshoe Shoal	900 feet
Brunswick Town Barge (0086CFR)	Upper Midnight	660 feet

The remaining fourteen shipwreck sites along that portion of the river are located in the intertidal zone along the shoreline and are well outside the area of direct project impact.

Cape Fear Memorial Bridge to the Hilton Railroad Bridge

There are sixty-six known shipwreck sites between the Cape Fear Memorial Bridge and the Hilton Railroad Bridge **(Figure 73,74)**. Eight of those sites are either in the channel or within the 120-foot channel margin and require some degree of additional investigation or data recovery. Of those eight sites, all but one, Skinners Dock Wreck (0022CFR), are scheduled for further investigation and possible data recovery during the Wilmington Harbor-Northeast Cape Fear River 38-Foot Project. That project will deepen the existing 32-foot channel to 38 feet; it is scheduled to be completed before the Cape Fear-Northeast Cape Fear Rivers Comprehensive Study is undertaken. The Cape Fear-Northeast Cape Fear Rivers Comprehensive Study, as originally designed, would further deepen that range of the river to 40 feet. As of December 1995, however, plans to deepen that range between the Cape Fear Memorial Bridge and 750 feet above the Hilton Railroad Bridge have been eliminated from the Cape Fear-Northeast Cape Fear Rivers Comprehensive Study. Under the current project features no impacts to these sites would occur. If the Wilmington Harbor - Northeast Cape Fear River project features are combined with the Cape Fear - Northeast Cape Fear River Comprehensive project at some future date, however, then the sites shown in Table 2-5 would require further documentation and/or mitigation.

Table 2-5.
Wilmington Waterfront Sites and others Threatened by deepening to 38 feet.

0002CFR	*Blanchard*
0003CFR	*A. P. Hurt*
0016CFR	*John Knox*
0022CFR	Skinners Dock Wreck
0062CFR	Work Boat #2
0063CFR	Work Barge
0068CFR	Walker Barge
0037NER	Hilton Schooner

Seven of these eight potentially threatened sites are located within the boundaries of the Wilmington Historical District. Of the National Register sites—the *Blanchard* (0002CFR), the *A. P. Hurt* (0003CFR), the *John Knox* (0016CFR), and the Skinners Dock Wreck (0022CFR)—were included in a 1985 addendum to the National Register of Historic Places Wilmington Historical District. In 1990 the U.S. Department of the Interior determined that those sites were "nationally significant" (Federal Register 1990). Three of the remaining sites—the Work Barge (0063CFR), the Walker Barge (0068CFR), and Work Boat #2 (0062CFR)—are located within the boundaries of the Wilmington Historical District but were discovered after 1985, and so were not included in the 1985 addendum. Nonetheless, those three sites embody similar characteristics to the thirty-seven shipwrecks included in the 1985 addendum, and it is recommended that they be considered National Register eligible as contributing properties to the Wilmington Historical District.

The final site, Hilton Schooner (0037NER), was discovered in 1988 by Tidewater Atlantic Research (TAR) while that firm was conducting a survey of the Northeast Cape Fear River for the USACOE (TAR 1988). The site was located outside the boundaries of the Wilmington Historical District. The Hilton Schooner site was determined to be eligible for the National Register in 1991, and TAR prepared a nomination form for the site that was approved by the North Carolina Historical Commission's National Register Advisory Committee in January 1992.

Recommended Additional Work for the Cape Fear - Northeast Cape Fear River Comprehensive Study.
As previously stated in this report, it is recommended that a detailed examination of the dredging history of the Battery Island, Southport, and Baldhead-Caswell ranges be made in order to determine the portions of the navigation channel in those ranges that have never been dredged. In previously undredged areas of those ranges, a

magnetometer survey should be conducted to determine if potentially significant magnetic anomalies are located in the navigation channel.

Wilmington Waterfront and Northeast Cape Fear River Sites Requiring Additional Work Under the Wilmington Harbor - Northeast Cape Fear River Project Features. The *A. P. Hurt* (0003CFR) is the most historically significant of the shipwreck sites threatened by the proposed channel-deepening project **(Figure 90)**. The site was included in the 1985 Addendum to the Wilmington Historic District and is eligible for listing in the National Register as an individual property. In a 1988 report titled "Archaeological Reconnaissance of the Wilmington Harbor/Northeast Cape Fear River," TAR made the following observations regarding the significance of the *A. P. Hurt*.

> The remains of the *A. P. Hurt* preserve both historical and archaeological information that can be considered significant and worthy of recovery and preservation. The hull and machinery preserve valuable architectural, construction, and engineering data that reflects both the *A. P. Hurt*'s mid-nineteenth century origins and subsequent twentieth century repairs and restorations. The *A. P. Hurt* can be considered typical of the more than forty shallow draft steamers that operated between Wilmington and Fayetteville during the nineteenth and early-twentieth centuries. General W. T. Sherman's use of the vessel certainly ties the *A. P. Hurt* to significant historical events if not the characters creating those events.
>
> At the same time, the *A. P. Hurt* could be technologically unique. According to site files of the Underwater Archaeology Unit . . ., the *A. P. Hurt* was the first steel plated vessel built in the United States. This was not substantiated by historical research and no samples of the hull . . . have been recovered for analysis. As the steamer was a frequent feature of the Wilmington waterfront, it can also be considered an integral part of the Wilmington Historic District. Because the site has not been disturbed by salvage, the remains of the *A. P. Hurt* can be considered archaeologically undisturbed. . . . [T]he ship must be accorded consideration specified by statute, executive order, and the regulations of the Advisory Council on Historic Preservation (TAR 1988:27).

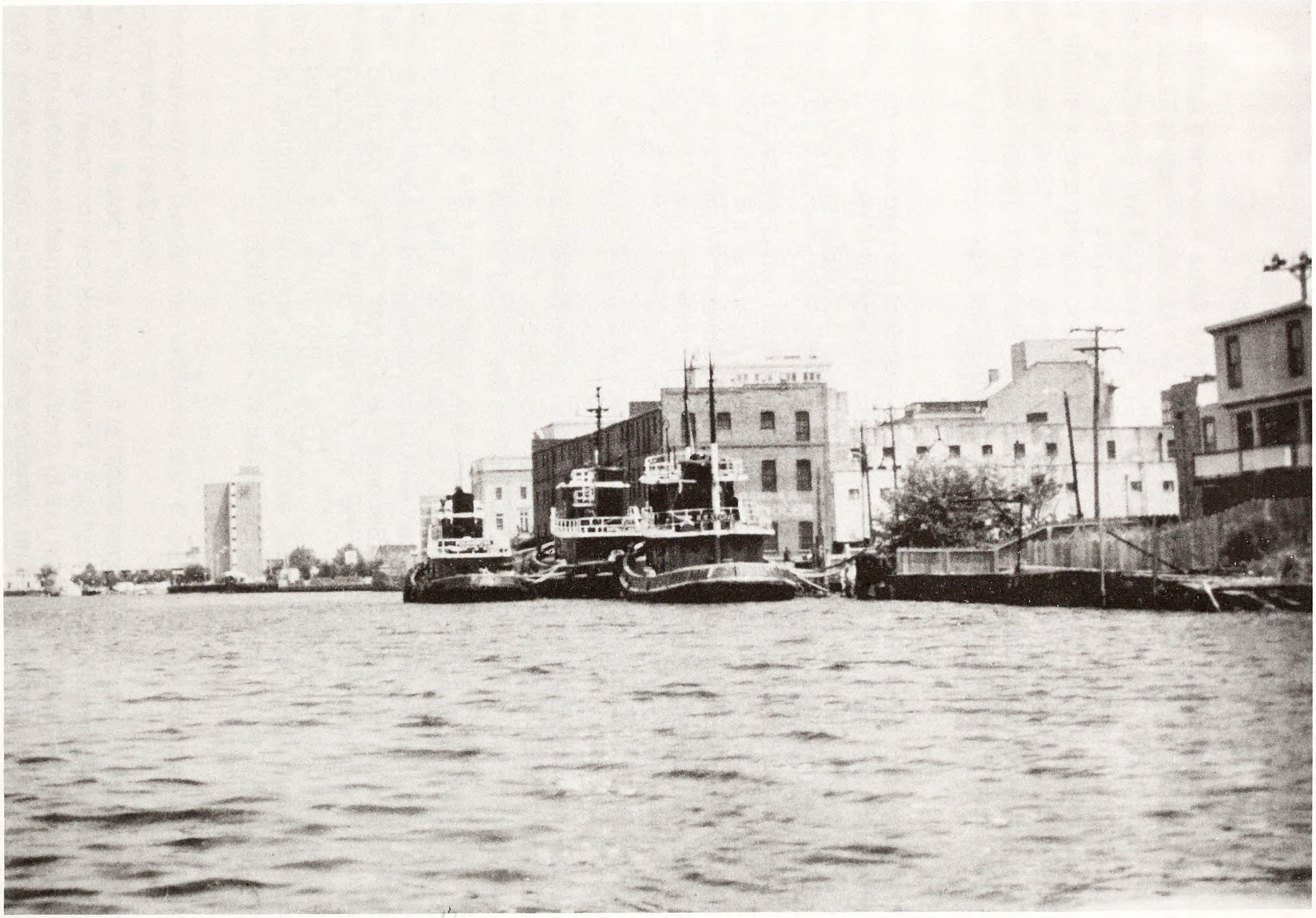


Figure 90. Wilmington shoreline between Dock and Orange streets. The *A.P. Hurt* lies submerged immediately downstream of the tugboats.

Once it is determined what effect channel deepening will have on the remains of the *A. P. Hurt*, a number of options should be considered in an effort to protect the vessel and retrieve the archaeological and historical information preserved at the site. Options might include:

- realigning the channel to avoid impact to the site

- stabilizing the site through the use of pilings or other appropriate structures to lessen or eliminate the effect of channel undercutting

- complete *in situ* documentation of the shipwreck site to include:

    a. determining the overall dimensions of the wreck site and an estimate of the vessel's original dimensions (length, beam, and depth)
    b. Recording the shape of the hull and measuring individual structural components, including construction details of bow, stern, and engineering areas
    c. Determining what machinery is present at the site (i.e., engines, boiler, paddlewheel, auxiliary equipment, pumps, etc.), and its current condition
    d. Evaluating the extent of artifacts associated with the wreck and recovering a representative sample for analysis
    e. Producing either an isometric or perspective drawing at a scale of around 1:60 (1"=5') that would show the site and environs at the time fieldwork is conducted, and also creating a site plan, hull cross-sections, and hull line drawings of the site showing the major components of the steam vessel and the locations of the artifact finds, if any, in their proper relationship

- recovering the hull, or selected portions of the wreck such as the steam machinery, for study, documentation, and possible curation and display

- developing an interpretive exhibit on the *A. P. Hurt* either along the adjacent shoreline or in a facility such as the Cape Fear Museum in Wilmington

In an effort to mitigate adverse impacts on the Hilton Schooner (0037NER) both from ongoing maintenance and operation of the Northeast Cape Fear River channel and the proposed channel deepening, TAR, under contract with the USACOE, conducted field investigations and data recovery at the site in 1988, 1990, and 1992. That work has resulted in as thorough a documentation of the shipwreck as is possible with the vessel in its current environment. In TAR's final project report on the Hilton Schooner, the following recommendations are made:

> The most significant data remaining at the site is [sic] associated with the vessel's framing pattern and the design and construction of the centerboard and centerboard trunk pocket piece(s). That data could only be recovered by disassembling more of the hull structure. In the event that the wreck is to be destroyed or is exposed by changes in the river bottom environment some consideration should be given to recovering those data. That will complete the documentation process. Thereafter the complete destruction of the surviving vessel structure would not represent a loss of critical design and construction data (TAR 1994).

This report concurs with TAR's recommendations regarding the Hilton Schooner. Specifically, it is recommended that if the site is threatened by proposed dredging, a plan be developed to remove the vessel from the water and place it on land in a temporary wet-storage area (for example, at the USACOE maintenance yard under a sprinkler system) until the documentation process can be completed. After the vessel has been thoroughly recorded, it can either be transferred to a museum facility willing to conserve and curate the hull remains or properly disposed of.

The shipwrecks *Blanchard* (0002CFR), *John Knox* (0016CFR), Skinners Dock Wreck (0022CFR), Work Barge (0063CFR), Walker Barge (0068CFR), and Work Boat #2 (0062CFR) have been designated as significant contributing elements to the Wilmington Historical District. But, in a 1988 report titled "Archaeological Reconnaissance of the Wilmington Harbor/Northeast Cape Fear River" prepared for the USACOE, TAR concluded that none of the above sites warranted inclusion on the National Register as individual properties. Although those sites may not be historically significant individually, they do contain architectural and archaeological information that warrants further study and documentation. If these sites are threatened with disturbance or destruction by the deepening project, steps should be taken to ensure that they are archaeologically recorded in adherence to the requirements of "Level Two" documentation as defined at the First North Carolina Maritime Workshop, April 6, 1986 (UAU 1986b:4). That level of documentation will include: length and beam measurements, descriptions of hull materials and configuration and means of propulsion, hull profiles, and bow and stern details. Investigators should also make a precise determination of the water depth and position of the vessel.

Secondary Impacts on Shipwreck Sites

Although shipwreck sites in the immediate vicinity of dredging operations are certainly in the greatest danger of disturbance or destruction, other nearby sites can be affected by the movement and mooring of dredging-related vessels and equipment. (This problem was encountered during the fall of 1995 when it was discovered that a marine construction company, while performing dredging for the USACOE, had chosen a relatively sheltered portion of the river, adjacent to the west side of Battery Island, as a staging area and a temporary mooring for the dredge, barges, and other equipment being used in the channel deepening project.) Unfortunately, and unknown to the dredging company, that location was in the immediate vicinity of the CSS *North Carolina* (0052CFR). UAU divers inspected the *North Carolina* site and discovered that a large 15,000-pound anchor attached by a wire rope cable to a metal mooring buoy was lying in the wreck site. The UAU divers observed recent structural damage to the hull of the *North Carolina* in the vicinity of the anchor. Two large iron boxes (possibly freshwater storage tanks) that were noted in the 1993 survey of the wreck were found to be severely disturbed. The UAU divers also noted the presence of dislodged planking and framing timbers, as well as broken iron concretions, throughout the wreck site.

Following the examination of the *North Carolina* site, the UAU made recommendations to the USACOE that the contractor be required to move his equipment from that area, that an assessment be made of the damage to the *North Carolina* site, and that the two agencies develop plans to designate and/or review mooring and staging areas used during future construction projects. With the information about the location of shipwreck sites gained from the Cape Fear River Comprehensive Study, it is possible to designate certain areas of the river in which vessels and equipment can be safely moored or anchored and other areas that should be avoided.

Although it is difficult to predict or assess other secondary impacts that the proposed dredging may have on nearby shipwreck sites, two potential impacts--salinity changes and increased ship wake--bear consideration.

Changes in the river's salinity can have a direct effect on wood and metal components of shipwreck sites. An increase in salinity could result in the introduction of wood-boring marine organisms (such as gribbles, *Limnoria lignorum*, and shipworms, mollusks of the genera *Teredo* and *Bankia*) into areas in which the water was previously too fresh to allow those organism to flourish. Consequently, wooden components of shipwrecks would be subjected to the ravages of those organisms. Likewise, a rise in salinity levels would increase the corrosion rate of metal components of shipwrecks, particularly iron and steel.

As part of the Cape Fear River Comprehensive Study, the Corps of Engineers Waterways Experiment Station developed a three-dimensional surface water model to determine how the proposed deepening project would affect salinity levels in the Cape Fear and Northeast Cape Fear rivers. According to that study: ". . . the model results predict that deepening Wilmington Harbor by 4 feet would slightly reduce salinity. These results are similar regardless of which 3-day average was chosen during the 18-day low flow period." (USACOE 1996:32)

If this model is accurate, and salinity levels decrease, the deepening project may have a beneficial effect on wood and metal components of shipwreck sites. On the other hand, if future studies—either additional modeling or post-project monitoring—indicate an increase in river salinity levels, then the impact on shipwreck sites should be assessed.

The primary purpose of the deepening project is to allow larger and deeper-draft ships access to Wilmington harbor. If deeper-draft ships produce larger wakes, then shipwrecks sites located in shallow water, or the intertidal zone, could be subjected to increased wave action and erosion. The USACOE addressed the issue of wake-induced erosion in the "Draft Environmental Impact Statement for Cape Fear-Northeast Cape Fear Rivers Feasibility Study." The study concludes that: "Erosion of shorelines and marsh should not increase due to the proposed project. Vessel wake height would only increase about 1 percent due to about 4 feet increase in vessel draft. Also, the number of vessel trips will probably not increase appreciably. With the deeper draft project constructed, vessels will not be light-loaded and thus will carry more tonnage per vessel trip. Therefore, the number of vessels calling on Wilmington will not be greater to transport the same or a reasonable increase in tonnage" (USACOE 1996:43)

Consequently, shipwreck sites located in shallow water, or the intertidal zone, should not be subjected to any greater wake-related disturbance than that which is already occurring as part of existing shipping operations.

Summary

As reported in Volume I of this report, the initial phase of the Cape Fear River Comprehensive Study concentrated on cartographic and historical research. In an effort to compile a complete maritime historical overview of the study area, researchers examined 145 maps and charts of the Cape Fear River, as well as a wide range of historical documents. That research documents nearly 300 shipwrecks, 23 fortifications, 35 plantations, 54 shipyards, and 6 ferry crossings. The report also documents the area's prehistory, European exploration and settlement, place-names, and an overview of efforts to improve navigation on the river.

Based on the cartographic and historical research, project personnel selected twelve priority areas for intensive remote sensing survey. The USACOE, using its survey vessels *Wanchese* and *Gillette*, conducted the initial magnetometer survey of the twelve priority areas. The survey, conducted at a 60-foot lane spacing, covered 175 linear miles and encompassed more than 1,200 acres of the river. Following the survey, USACOE staff produced detailed magnetic contour maps of each priority area.

The UAU used the magnetic contour maps to relocate and examine the magnetic anomalies. The UAU field crew made more than 150 dives on 102 targets in the various priority areas. The fieldwork documented 33 new shipwreck sites in the study area, while previous survey projects had previously located 59 sites. Of the total of 92 shipwrecks located in the study area, only 8 were found to be threatened by the proposed deepening project. Specific recommendations have been made for additional work at each of those 8 sites.

A review of the past dredging history of the various ranges of the river indicated that portions of the Lower Swash, Battery Island, Southport, Baldhead-Caswell, and Smith Island ranges near the river's mouth have never been dredged and thus may contain significant undisturbed cultural resources. It is recommended that a magnetometer survey be conduced of those ranges and that any targets located during the survey be investigated and evaluated.

As a result of the historical and archaeological information compiled during the Cape Fear River Comprehensive Study, the Cape Fear River, from Wilmington to the sea, is by far the best-documented body of water in North Carolina. This is particularly appropriate given the major role that the Cape Fear River and the port of Wilmington have played in the development of the state. This compilation of historical and archaeological knowledge should prove useful, to agencies responsible for management of cultural resources in the Cape Fear River, as well as for researchers throughout the state and nation who are interested in the history and development of a southern river port and the archaeological record left behind as testimony of the region's rich maritime history.

References Cited

Alford, Michael B.

1990 Traditional Work Boats of North Carolina. North Carolina Maritime Museum. Harkers Island, N.C.: Hancock Publishing.

Angley, Wilson.

1983 "A Historical Overview of the Sunny Point Terminal Area on the Lower Cape Fear River." Manuscript on file, Underwater Archaeology Unit, Kure Beach, North Carolina.

1986 "A History of the Brunswick Ferry." Manuscript on file, Underwater Archaeology Unit, Kure Beach, North Carolina.

1989 "A Brief History of the Eagles Plantation and Mill Facility in Brunswick County." Manuscript on file, Underwater Archaeology Unit, Kure Beach, North Carolina.

1990 "A Brief History of Fort Johnston in Southport, North Carolina." Manuscript on file, Underwater Archaeology Unit, Kure Beach, North Carolina.

Archaeological Research Consultants, Inc.

1981a "An Intensive Archaeological Reconnaissance of Areas Bordering Snows Cut, New Hanover County, North Carolina." Prepared for the Wilmington District, U.S. Army Corps of Engineers.

1981b "An Intensive Archaeological Reconnaissance of the Carolina Beach Borrow Area, New Hanover County, North Carolina." Prepared for the Wilmington District, U.S. Army Corps of Engineers.

1984 "Archaeological Test Excavations at Reaves Point, Military Ocean Terminal at Sunny Point (MOTSU), Brunswick County, North Carolina." Report prepared for Wilmington District, U.S. Army Corps of Engineers.

1985a "An Archaeological Survey of A Section of the Phase II Development Area, Bald Head Island, Brunswick County, North Carolina." Report submitted to Bald Head Island Limited, Southport, North Carolina.

1985b "Terrestrial and Marine Archaeological Survey of the Proposed Castle Street Boat Ramp on the Cape Fear River, Wilmington, New Hanover County, North Carolina." Report submitted to Wilmington District, U.S. Army Corps of Engineers.

Asbury, Ray V.
1966 "Belvedere Plantation." Brunswick County Historical Newsletter 6, no. 1 (February): 1-2.

Ashe, Samuel A.
1905 Biographical History of North Carolina from Colonial Times to the Present. Edited by S. A. Ashe, S. B. Weeks and C. L. Van Noppen. Greensboro: Charles L. Van Noppen.

1908 History of North Carolina. Greensboro: Charles L. Van Noppen.

Barrett, John G.
1963 The Civil War in North Carolina. Chapel Hill: The University of North Carolina Press.

Bellamy, John D., Jr.
1882 "Sketch of Major General Robert Howe of the American Revolution." Speech delivered March 16, 1882. Copy on file Underwater Archaeology Unit, Kure Beach, North Carolina.

Berman, Bruce D.
1972 Encyclopedia of American Shipwrecks. Boston: The Mariners Press, Inc.

Bolles, C. P.
C. P. Bolles Papers, Private Collections, State Archives, Division of Archives and History, Raleigh.

Boston Weekly News-Letter (Boston, Mass.).

Branson's North Carolina Businesss Directory.
1869 Branson's North Carolina Businesss Directory, Wilmington. N.C.: Branson Company.

Brickell, John.
1737 The Natural History of North Carolina. Reprint, Murfreesboro: Johnson Publishing Co., 1968.

Brockington and Associates.
1990 "Archaeological Testing at the Oak Island Coast Guard Station, Brunswick County, North Carolina." Prepared for Synthesis Architects Planners, Wrightsville Beach, North Carolina, by Brockington and Associates, Atlanta and Raleigh.

Brown, Landis G.
1973 "Quarantine on the Cape Fear River." The State 41, no. 6 (November).

Cape Fear Mercury (Wilmington, N.C.).

Carnell, David.
1988 "Looking for 'Mister' Wright." Wildlife in North Carolina 52, no. 10 (October).

Carolina Archaeological Services.
1990 "Archaeological Inventory Survey and National Register Evaluations: Military Ocean Terminal, Sunny Point, New Hanover County, North Carolina." Prepared for Military Ocean Terminal, Sunny Point under supervision of U.S. Army Corps of Engineers, Wilmington District.

Carolina Observer and Fayetteville Gazette (Fayetteville, N.C.).

Carson, Susan S.
1992 Joshua's Dream: A Town with Two Names. Wilmington, N.C.: Carolina Power and Light Company, Southport, N.C.

Chapelle, Howard I.
1935 The History of American Sailing Ships. New York: Bonanza Books.

Charleston Gazette (Charleston, S.C.).

Clark, Walter (ed.)
1895-1907 The State Records of North Carolina. 16 vols., numbered 11-26. Winston and Goldsboro, N.C.: State of North Carolina.

Coastal Zone Resources Division.
1972 "Environmental Assessment/Final Environmental Statement, Maintenance Dredging of Basins and Channels at Military Ocean Terminal, Sunny Point, N.C." Prepared under contract for U.S. Army Corps of Engineers, Wilmington District for Military Ocean Terminal.

1979 "A Cultural Resource Survey of Selected Portions of the Military Ocean Terminal, Sunny Point, North Carolina." Prepared for Savannah District, U.S. Army Corps of Engineers.

Cowles, Capt. Calvin D. (compiler)
1891-1895 The Official Atlas of the Civil War. Washington: Government Printing Office; New York: Thomas Yoseloff, 1958.

Cultural Heritage Research Services, Inc.

1983 "Cultural Resource Survey: Reaves Point, Proposed Disposal Area 5 and Disposal Area 2 Project Areas, Military Ocean Terminal, Sunny Point, North Carolina." Prepared for Wilmington District, U.S. Army Corps of Engineers.

The Cultural Resource Group.

1992 "Archaeological Investigations at Fort Johnston, Fort Anderson, The Robbins Plantation, and Battery Lamb: Military Point Terminal, Sunny Point, North Carolina." Prepared for Wilmington District, U.S. Army Corps of Engineers.

Cumming, William P.

1957 The Southeast in Early Maps. Chapel Hill: The University of North Carolina Press.

Department of Cultural Resources and Department of Environment, Health, and Natural Resources.

1993 "Cape Fear River Comprehensive Survey Memorandum of Agreement, March 17, 1993." Copy on file Underwater Archaeology Unit, Kure Beach, North Carolina.

Division of Archives and History.

1969 "Brunswick Town Historic District." Nomination to the National Register of Historic Places. North Carolina Department of Cultural Resources, Division of Archives and History, Raleigh, N.C.

Dunn, Gerry N.

n.d "Wilmington Shipyard Sites 1860-1970." Manuscript on file at the Underwater Archaeology Unit, Kure Beach, North Carolina.

East Florida Herald (Miami, Florida).

Envirosphere Company

1987 "Military Ocean Terminal Sunny Point, North Carolina: Historic Preservation Plan." Prepared under the supervision of U.S. Army Corps of Engineers, Wilmington District.

Evans, Gen. Clement A.

1987 Confederate Military History. Rev. ed. Wilmington, N.C.: Broadfoot Publishing Co.

Farb, Roderick M.

1985 Shipwrecks Diving the Graveyard of the Atlantic. Birmingham: Menasha Ridge Press.

Federal Point Historic Preservation Society.

1995 Federal Point Historic Preservation Society Newsletter 2, nos. 1 and 2 (January and February 1995).

Federal Register.

1990 Abandoned Shipwreck Act; Final Guidelines; Notice. Washington D.C.: Department of the Interior, Part III.

Finlay, Hugh.

1867 Journal Kept by Hugh Finlay. . . . Brooklyn: Frank H. Norton.

Flint, Willard.

1989 Lightships of the United States Government. Washington, D.C.: Coast Guard Historian's Office.

Fort Fisher State Historic Site.

1974 "Fort Fisher State Historic Site Master Development Plan." North Carolina Department of Natural and Economic Resources and North Carolina Department of Cultural Resources.

1995 "Fort Fisher Revetment Project." Informational brochure prepared by Fort Fisher State Historic Site, Misener Marine Construction, Inc. and U.S. Army Corps of Engineers, Wilmington District.

Gardner, William M.

1977 "Flint Run Paleoindian Complex and its Implication for Eastern North American Prehistory." In Amerinds and Their Paleoenvironments in Northeastern North America, edited by Newman and Salwen, Annals of the New York Academy of Sciences.

Goldenberg, Joseph A.

1976 Shipbuilding in Colonial America. Charlottesville: University of Virginia.

Graves, Mae Blake, (compiler).

1980 Land Grants of New Hanover County. Wilmington: Published by the author.

1981 New Hanover County Abstracts of Wills. Wilmington: Published by the author.

Green, William J.
1992 "Spanish Raids on the Coast of North Carolina, 1741-1748." Tributaries 2, no. 1 (October 1992):17-21.

Hakluyt, Richard.
1927 The Principal Navigations Voyages Traffiques & Discoveries of the English Nation: Made by Sea or Overland to the Remote and Farthest Quarters of the Earth at Any Time Within the Compass of These 1600 Years. Reprint, with an introduction by John Masefield. 10 vols. New York: E. P. Dutton & Co., 1927-1928.

Hall, Lewis P.
1975 Land of the Golden River. Vol. 1. Wilmington, N.C.: Wilmington Printing Company.

1980 Land of the Golden River. Vols. 2 and 3. Wilmington, N.C.: Wilmington Printing Company.

Hartzer, Ronald B.
1984 To Great and Useful Purpose: A History of the Wilmington District U.S. Army Corps of Engineers. Wilmington: Privately printed.

Hay, Conran A., Catherine E. Bollinger, Alan N. Snavely, Thomas E. Scheitlin, and Thomas O. Maher.
1982 "Archaeological Predictive Models: A New Hanover County Test Case." North Carolina Archaeological Council Publication Number 18. Published jointly by North Carolina Archaeological Council and the North Carolina Department of Cultural Resources, Raleigh.

Herring, Ethel.
1967 Cap'n Charlie and Lights of the Lower Cape Fear. Winston-Salem, N.C.: Hunter Publishing Company.

Herring, Ethel and Williams, Carolee.
1983 Fort Caswell In War and Peace. Wendell, N.C.: Broadfoot's Bookmark.

Heyl, Erik.
1965 Early American Steamer. Buffalo, N.Y.: Printed by the author.

Honeycutt, Ava L., Jr.
1963 "Fort Fisher, Malakoff of the South." Unpublished thesis, Department of History, Duke University.

1967 "Fort Fisher During World War II." Unpublished manuscript on file, Fort Fisher State Historic Site, Kure Beach, North Carolina.

Howell, Margaret S.
1984 "Lilliput Lost." Cape Fear Tidewater, (September):6-9.

Johnson, F. Roy.
1977 Riverboating in Lower Carolina. Murfreesboro, N.C.: Johnson Publishing Company.

Kelley's Wilmington Directory.
1860 Kelley's Wilmington Directory. Compiled by T. Tuther, Jr. Wilmington, N.C.: George H. Kelley.

Kellum, Ida B. (ed.)
n.d. "Kellum's Block Files." Vol. 1. Unpublished. New Hanover County Public Library, Local History Room, Wilmington, N.C.

Klein, Terry and Pickens, Suzanne S.
1993 "Documentation on a Proposed Historic Archaeological District Including Thornbury Plantation (31NH42 and 513) and Nessess Creek Plantation (31NH273) Wilmington Bypass, New Hanover County." Report prepared by Greiner, Inc.

Johnson, F. Roy.
1977 Riverboating in Lower Carolina. Murfreesboro, N.C.: Johnson Publishing Company.

Johnson, Hugh B., editor.
1959 "The Journal of Ebenezer Hazard in North Carolina, 1777-1778." North Carolina Historical Review 36, no. 1 (January).

Lamb, Colonel William.
1896 "Defence of Fort Fisher, North Carolina." In Operation on The Atlantic Coast 1861-1865, Virginia 1862-1864, Vicksburg: Papers of The Military Historical Society of Massachusetts, Vol. IX. Boston: The Military Historical Society of Massachusetts, 1912.

Lawrence, Richard W.
1985 "Underwater Archaeological Sites in the Wilmington Historical District." Addendum to the National Register of Historic Places nomination form. Copy on file, North Carolina Underwater Archaeology Unit, Kure Beach, N.C.

1987 "Location and Identification of the Steamboat *Spray*." Paper presented at the Eighteenth Annual Conference in Underwater Archaeology, Savannah, Georgia.

Lee, Lawrence.
1965 The Lower Cape Fear in Colonial Days. Chapel Hill: The University of North Carolina Press.

1971 New Hanover County: A Brief History. Raleigh: North Carolina Department of Archives and History.

1978 The History of Brunswick County, North Carolina. Southport, N.C.: Brunswick County American Revolution Bicentennial Commission.

Lennon, Donald R. and Ida Brooks Kellum (editors).
1973 The Wilmington Town Book. Raleigh: Division of Archives and History, N.C. Department of Cultural Resources.

Lewis, Richard H.
1982 "Investigation of Civil War Era Fortifications Located at the Carolina Beach Borrow Area, New Hanover County, North Carolina." Ms. on file, Wilmington District, U.S. Army Corps of Engineers.

Logan, Byron Eugene.
1956 "An Historical Geographic Study of North Carolina Ports." Ph.D. diss., University of North Carolina.

Lossing, Benson J.
1868 Pictorial History of the Civil War in the United States of America. Hartford, Conn.: T. Belknap Publisher.

Loftfield, Thomas C.
1976 "An Archaeological Reconnaissance of Certain Areas of the Lower Cape Fear River." Report submitted to the Wilmington District, U.S. Army Corps of Engineers.

Lower Cape Fear Historical Society.
1969 Bulletin of the Lower Cape Fear Historical Society, 12, no. 2 (February).

Lytle, William M. and Forrest R. Holdcamper.
1975 Merchant Steam Vessels of the United States: 1790-1868. New York: The Steamship Historical Society of America.

Mallison, Fred.
1959 "Blockade Busters That Failed." The State 27, no. 15 (December 26, 1959): 9-12.

Massengill, Stephen E.
1977 "The Construction of Fort Fisher." Unpublished manuscript prepared for the Division of Archives and History, North Carolina Department of Cultural Resources, Wilmington, North Carolina.

McEachern, Leora and Isabel Williams (editors)
1976 Wilmington-New Hanover Safety Committee Minutes, 1774-1776. Wilmington, North Carolina.

McKoy, Elizabeth F.
1967 Early Wilmington Block by Block: From 1733 On. Raleigh: Edwards and Broughton Company.

1973 Early New Hanover County Records. Wilmington, North Carolina: Published by the author.

Meredith, Hugh.
1731 An Account of the Cape Fear Country 1731. Edited by Earl Gregg Swem. Reprinted 1922 for Charles F. Heartman, Perth Amboy, New Jersey.

Mooney, James.
1894 The Siouan Tribes of the East. Washington: Bureau of Ethnology.

Moore, Louis T.
1968 Stories Old and New of the Cape Fear Region. Wilmington,N.C.: Published by Friends of Louis T. Moore throught the Louis T. Moore Memorial Fund.

Morgan, William James (editor).
1970 Naval Documents of the American Revolution. Washington: U.S. Government Printing Office.

Morison, Samuel E.
1971 The European Discovery of America: The Northern Voyages. New York: Oxford University Press.

Moseley, Edward H., III.
n.d. "Southern Built: Wilmington's Maritime Construction Industry, 1727-1860." Unpublished draft manuscript, Wilmington, North Carolina.

Murray, Paul and Stephen Russel Bartlett, Jr.
1956 "The Letters of Stephen Chaulker Bartlett Aboard U.S.S. *Lenapee*, January to August 1865." The North Carolina Historical Review 33, no. 1 (January): 66-92.

New Hanover County, Road, River, and Ferry Papers, 1798-1869. State Archives, Division of Archives and History.

New Bern Centinel (New Bern, N.C.).

New York Herald (New York, N.Y.).

North Carolina Shipbuilder.
1946 Wilmington, North Carolina, (June 1, 1946). Information on file, North Carolina Research Room, New Hanover County Public Library, Wilmington, N.C.

Ocean Surveys, Inc.
1981 "Cultural Resource Magnetic Survey, Northeast Cape Fear River, Wilmington, North Carolina." Prepared for Atlantic Resources, Inc., Edenton, N.C.

Olsberg, R. Nicholas.
1973 "Ship Registers in South Carolina, 1734-1780." South Carolina Historical Magazine, 74 (October 1973), introduction.

de Oviedo, Gonzalo Fernandez.
1855 Historia General y Natural de las Indias. Chapters 1-3 of Book 37 Translated by A.Q. Devereux. 1851-1855 edition.

Parker, Mattie Erma Edwards.
1963 North Carolina Charters and Constitutions, 1578 - 1698. Raleigh: Carolina Charter Tercentenary Commission.

Payne, Ted M. and Ann Brown.
1983 "Cultural Resource Survey: Reaves Point, Proposed Area 5 and Disposal Area 2 Project Areas, Military Ocean Terminal, Sunny Point, North Carolina." Prepared for Department of the Army, Wilmington District by Cultural Heritage Research, Sharon Hill, Pennsylvania.

Peek, Charles Smith.
Letters and Papers of Charles Smith Peek, Acting Third Assistant Engineer, CSS *North Carolina*. Typed transcripts in the possession of Dr. Charles Perry, Charleston, South Carolina.

Pennsylvania Gazette (Philadelphia, Penn.).

Perdue, Theda.

1985 Native Carolinians: The Indians of North Carolina. Raleigh: Division of Archives and History, North Carolina Department of Cultural Resources.

Phelps, David S.

1975 Test Excavations at the Parker Site (31Ed29) at Speed, Edgecombe County, North Carolina. In "Archaeological Surveys of Four Watersheds in the North Carolina Coastal Plain." North Carolina Archaeological Council Publication 16 (1981): 106-137.

1983 Archaeology of the North Carolina Coast and Coastal Plain: Problems and Hypotheses. In The Prehistory of North Carolina, Edited by Mark A. Mathis and Jeffrey J. Crow. Raleigh: Division of Archives and History, N.C. Department of Cultural Resources.

Potter, Greg L.

1993 "Report of Findings: The Yeamans' Expedition Fly-Boat." Prepared for the North Carolina Department of Cultural Resources, Underwater Archaeology Unit, Kure Beach, North Carolina.

Powell, William S.

1968 The North Carolina Gazetteer. Chapel Hill: The University of North Carolina Press.

Randall, J. R., Papers.

J. R. Randall to "Kate," June 3, 1864. J. R. Randall Papers, Southern Historical Collection, University of North Carolina, Chapel Hill.

Rayburn, Richard H.

1984 "One of the Finest Rivers in the South: Corps of Engineers Improvements on the Cape Fear Below Wilmington, 1870-1881." Lower Cape Fear Historical Society, Inc. Bulletin 27, no. 3 (May):1-6.

1985 "One of the Finest Rivers in the South: Corps of Engineers Improvements on the Cape Fear Below Wilmington, 1881-1919." Lower Cape Fear Historical Society, Inc. Bulletin 28, no. 2 (February):1-6.

Reaves, William M.

1977 Brief History of Wilmington, N.C. Privately printed by author.

1978 Southport (Smithville): A Chronlogy. Vol. 1, Wilmington, N.C: Broadfoot Publishing Company.

1982 "Gander Hall Plantation." The Coastal Carolinian, September 23, 1982.

1988 "Notes on the Brunswick River and its Environs." Unpublished manuscript on file, Underwater Archaeology Unit, Kure Beach, North Carolina.

1990 Southport (Smithville): A Chronology (1887 - 1920). Vol. 2. Southport, N.C.: The Southport Historical Society.

Robinson, William M., Jr.

1990 The Confederate Privateers. Columbia: The University of South Carolina Press.

Rogers, Henry M.

1928 Memories of Ninety Years, One Man and Many Friends. Boston and New York: Houghton Mufflin Co.

Saltus, Allen R., Jr.

1982 "Cultural Resources Survey of a Portion of the Northeast Cape Fear River and Report on the Test Excavation to Evaluate the Steamship 'Spray.' " Manuscript on file North Carolina Underwater Archaeology Unit, Kure Beach, North Carolina.

Saunders, William L.

1886-1890 The Colonial Records of North Carolina. 10 Vols. Raleigh: The State of North Carolina.

Schaw, Janet.

1934 Journal of a Lady of Quality: Being the Narrative of a Journey from Scotland to the West Indies, North Carolina, and Portugal, in the years 1774-1776. Edited by Evangeline W. Andrews. New Haven: Yale University Press.

Shomette, Donald G.

1973 Shipwrecks of the Civil War. Washington D.C.: Donic Ltd.

1995 Tidewater Time Capsule: History Beneath the Patuxent. Centreville, Maryland: Tidewater Publishers.

Shomette, Donald G. and Ralph E. Eshelman.

1981 "The Patuxent River Submerged Cultural Resource Survey Drum Point to Queen Anne's Bridge, Maryland." Maryland Historical Trust Manuscript Series Number 13. Maryland National Capital Park and Planning Commission.

Smith, Gene A.

1994 "A Force of Being: North Carlina and Jefferson's Gunboat Navy." Tributaries (October): 30-35.

South, Stanley.

1960a Colonial Brunswick 1726-1776. State Department of Archives and History, Raleigh, N.C.

1960b An Archaeological Survey of Southeastern Coastal North Carolina. Typescript copy. Wilmington, N.C.: Brunswick Town State Historic Site.

Sprunt, James.

1896 Tales and Traditions of the Lower Cape Fear 1661-1896. Wilmington: LeGwin Brothers; Reprint, Spartanburg, S.C.: The Reprint Co., 1973.

1920 Derelicts. Wilmington, N.C.: Privately printed.

1958 The Story of Orton Plantation. Wilmington, N. C.: Privately printed.

1992 Chronicles of The Cape Fear River 1660-1916. 2d ed. Wilmington: Broadfoot Publishing Co. Originally published, Raleigh: Edwards & Broughton Printing Co., 1916.

The State Port Pilot, (Southport, N.C.).

Stick, David.

1980 North Carolina Lighthouses. Raleigh: Division of Archives and History, N.C. Department of Cultural Resources.

1985 Bald Head: A History of Smith Island and Cape Fear. Wendell, N.C.: Broadfoot Publishing Company.

Still, William N., Jr.

1976 North Carolina's Revolutionary War Navy. Raleigh: Division of Archives and History, N.C. Department of Cultural Resources.

1981 "Shipbuilding in North Carolina: The World War I Experience." The American Neptune 41, no. 3, (July): 188 - 207.

n.d. "Shipbuilding in North America: A Case Study in the South's Maritime Heritage." Unpublished computer data base. Copy on file, Underwater Archaeology Unit, Kure Beach, North Carolina.

Swanton, John R.

1946 The Indians of the Southeastern United States. Bureau of American Ethnology, Bulletin 137, Washington, D.C.

Thomas, Cornelius.

1959 James Forte. Printed for The Charles Towne Preservation Trust. Clarendon Imprint No. 3. Wilmington, N.C: J.E. Hicks.

Thompson, Timothy A. and William M. Gardner.

1979 "A Cultural Resources and Impact Area Assessment of the Pea Island National Wildlife Refuge, Dare County, North Carolina." Front Royal, Virginia: Thunderbird Research Corporation.

Thunderbird Archeological Associates.

1983 "A Study of Four Proposed Coal Fired Facilities in Bertie County, North Carolina and Greensville, Mecklenberg and Buckingham Counties, Virginia." Report submitted to Envirosphere Company, Lyndhurst, New Jersey, for the Virginia Electric Power Company.

Tidewater Atlantic Research, Inc.

1982 "Williams Coal Export Terminal Submerged Cultural Resource Remote Sensing Survey Report." Submitted to Noble Associates, Skokie, Illinois.

1988 "Archaeological Reconnaissance of the Wilmington Harbor/Northeast Cape Fear River, North Carolina." Submitted to U.S. Army Corps of Engineers, Wilmington District.

1990a "A Report on Magnetic and Acoustic Targets Identified by Remote Sensing Investigation of Six Turns and Proposed Passing Lanes in the Shipping Channels of the Cape Fear River Below Wilmington, North Carolina." Submitted to U.S. Army Corps of Engineers, Wilmington District.

1990b "An Underwater Archaeological Investigation of the Hilton Wreck, Wilmington, North Carolina." Prepared for Wilmington District, U.S. Army Corps of Engineers.

1993a "A Submerged Cultural Resource Survey for Channel Improvements at the Center and South Wharves and Entrance Channels at Military Ocean Terminal (MOTSU), Sunny Point, Brunswick County, North Carolina." Report prepared for Wilmington District, U.S. Army Corps of Engineers.

1993b "A Submerged Cultural Resource Survey of Bald Head Shoal Channel, Vicinity of Wilmington, North Carolina." Submitted to Wilmington District, U.S. Army Corps of Engineers.

1994a "Underwater Archaeological Excavation and Data Recovery at the Hilton Wreck, Northeast Cape Fear River, Wilmington, North Carolina. Submitted to Environmental Resources Branch, Wilmington District, U.S. Army Corps of Engineers.

1994b "A Remote Sensing Survey and Diver Investigation at Wilmington Harbor Offshore Fishery Enhancement Structure, Vicinity of Wilmington, North Carolina." Submitted to Environmental Resources Branch, Wilmington District, U.S. Army Corps of Engineers.

1995a "Archaeological Remote Sensing Survey at Smith Island Channel, Cape Fear River, Wilmington Harbor, North Carolina." Submitted to Environmental Resources Branch, Wilmington District, U.S. Army Corps of Engineers.

1995b "Underwater Archaeological Assessment of Four Target Locations at Smith Island Channel, Wilmington Harbor, North Carolina." Submitted to Environmental Resources Branch, Wilmington District, U.S. Army Corps of Engineers.

1995c "Underwater Archaeological Assessment of Eight Magnetic Anomaly Locations within the Wilmington Harbor Channel Widening Project Area Below Wilmington, North Carolina." Submitted to Environmental Resources Branch, Wilmington District, U.S. Army Corps of Engineers.

Triebe, Richard and Mark Wilde-Ramsing.

1992 "The Mystery of the *Nuestra Senora de Regla:* Underwater Archaeology in North Carolina. Prologue 24, no. 1: 7-17.

Trotter, William R.

1989 Ironclads and Columbiads: The Civil War in North Carolina, The Coast. Winston-Salem: John F. Blair Publisher.

Underwater Archaeology Unit.

1975 "Brunswick Town Magnetometer Survey." Unpublished manuscript on file North Carolina Division of Archives and History, Underwater Archaeology Unit, Kure Beach, North Carolina.

1980a "Town Creek Magnetometer Survey." Unpublished manuscript on file North Carolina Division of Archives and History, Underwater Archaeology Unit, Kure Beach, North Carolina.

1980b "Magnetometer Survey of Battery Island and the CSS North Carolina wreck site." Field notes on file North Carolina Division of Archives and History, Underwater Archaeology Unit, Kure Beach, North Carolina.

1985 "Underwater Archaeological Survey at Brunswick Town for the Wreck of the Spanish sloop *Fortuna*." Unpublished manuscript on file North Carolina Division of Archives and History, Underwater Archaeology Unit, Kure Beach, North Carolina.

1986a Field Notes and Records of the Wilmington Harbor Side Scan Sonar Survey by Cape Fear Technical Institute and the Underwater Archaeology Unit. Material on file, North Carolina Underwater Archaeology Unit, Kure Beach, North Carolina.

1986b Selected Notes from the First North Carolina Maritime Workshop. Material on file, North Carolina Underwater Archaeology Unit, Kure Beach, North Carolina.

1992a "Town Creek Survey - Section 1." Unpublished manuscript on file North Carolina Division of Archives and History, Underwater Archaeology Unit, Kure Beach, North Carolina.

1992b "Shoreline Survey of the West Bank of the Northeast Cape Fear River in Areas to be Impacted by Corps of Engineers' Proposed Turning Basin Improvements, New Hanover County." Unpublished manuscript on file North Carolina Division of Archives and History, Underwater Archaeology Unit, Kure Beach, North Carolina.

n.d. North Carolina Shipwreck Site Files. Kure Beach

U.S. Army Corps of Engineers.

1884 Annual Report of the Chief of Engineers to the Secretary of War. Washington: U.S. Government Printing Office.

1977 "Final Environmental Statement. Maintenance of Wilmington Harbor North Carolina." Wilmington District, U.S. Army Corps of Engineers.

1981 "Magnetometer Survey and Cultural Resource Assessment of Selected Magnetic Anomalies, Military Ocean Terminal, Sunny Point, North Carolina." U.S. Army Engineer District, Savannah, Georgia, and U.S. Army Engineer District, Wilmington, North Carolina.

1983 "Diver Hands-on Cultural Resource Assessment of Selected Magnetic Anomalies at the North Wharf Military Ocean Terminal, Sunny Point, North Carolina: A Report of Negative Findings." Prepared by U.S. Army Engineer District, Savannah, Georgia, and U.S. Army Engineer District, Wilmington, North Carolina.

1985 Letter to William S. Price, State Historic Preservation Officer, North Carolina Division of Archives and History from Col. Wayne Hanson, District Engineer, Wilmington District, U.S. Army Corps of Engineers, 19 February 1985.

1989 "Final Environmental Impact Statement. Long-Term Maintenance of Wilmington Harbor North Carolina." Wilmington District, U.S. Army Corps of Engineers.

1992 "Reconnaissance Report on Improvement of Navigation Cape Fear - Northeast Cape Fear Rivers Comprehensive Study, Wilmington Harbor, North Carolina." Wilmington District, U.S. Army Corps of Engineers, May 1991 (Revised May 1992) and Planning Division letter dated 18 September 1992.

1994 "Final Interim Feasibility Report and Environmental Impact Statement on Improvement of Navigation, Wilmington Harbor Channel Widening, Wilmington, North Carolina, Volume 1 - Main Report." Wilmington District, U.S. Army Corps of Engineers.

1996 "Draft Feasibility Report And Environmental Impact Statement on Improvement of Navigation. Cape Fear - Northeast Cape Fear Rivers Comprehensive Study, Wilmington, North Carolina, Volume 1." Wilmington District, U.S. Army Corps of Engineers.

U.S. Department of Agriculture.
1977 Soil Survey of New Hanover County, North Carolina. United States Department of Agriculture, Soil Conservation Service.

Virginia Gazette (Williamsburg, Virginia).

Waddell, Alfred Moore.
1989 A History of New Hanover County and the Lower Cape Fear Region. Vol. 1, 1723-1800. Bowie, Md.: Heritage Books, Inc.

Walker, Alexander M., compiler.
1958-1962 New Hanover County Court Minutes, 1738 - 1800, 4 Vols. Bethesda, Md.: published by the compiler.

Watson, Alan D.

1973 "The Eagles Island Causeway: A Note on Travel in Colonial North Carolina." James Sprunt Review 2, no 1 (January).

1992 Wilmington: Port of North Carolina. Columbia: University of South Carolina Press.

Watters, Fanny C.

1961 Plantation Memories of the Cape Fear River Country. Asheville, N.C.: The Stephens Press.

Weaver, Charles, C.

1903 Internal Improvements in North Carolina. John Hopkins University Studies in Historical and Political Science. Series 21, nos. 3-4. Baltimore: The John Hopkins Press.

Wells, John B., III,

1972 Brunswick County 1860 Rice Plantation Economy. Raleigh.

Whitehead, Donald R.

1972 Development and Environmental History of the Dismal Swamp. Ecological Monographs, Vol. 42, pp. 301-315.

Wilde-Ramsing, Mark (editor).

1978 "A Report on the New Hanover County Archaeological Survey: A C.E.T.A. Project." Report on file Underwater Archaeology Unit, Kure Beach, North Carolina.

1985 "Cape Fear Civil War Shipwreck District." National Register of Historic Places nomination form. Copy on file, North Carolina Underwater Archaeology Unit, Kure Beach, N.C.

Wilkinson, Capt. J.

1877 The Narrative of a Blockade-Runner. New York: Sheldon & Company; Reprinted by Time-Life Books, 1984.

Willey, Gordon R.

1966 An Introduction to American Archaeology. Vol. 1. Englewood Cliffs: Prentice-Hall, Inc

Williams, Isabel M. and Leora H. McEachern.

1973 Salt, That Necessary Article. Wilmington, N.C.: Published by the authors.

1978 'River Excursions 1864." Lower Cape Fear Historical Society, Inc. Bulletin 21, no. 3 (May):1.

Wilmington City Directory,
1866-1867 Wilmington City Directory. Edited by Frank D. Smaw, Jr. Wilmington, N.C.: Frank D. Smaw, Jr.

Wilmington Advertiser (Wilmington, N.C.)

Wilmington Cape Fear Recorder (Wilmington, N.C.).

Wilmington Centinel (Wilmington, N.C.).

Wilmington Chronicle and North Carolina Weekly Advertiser (Wilmington, N.C.).

Wilmington Commercial (Wilmington, N.C.).

Wilmington Daily Journal (Wilmington, N.C.).

Wilmington Dispatch (Wilmington, N.C.).

Wilmington Gazette (Wilmington, N.C.).

Wilmington Herald of the Union (Wilmington, N.C.).

Wilmington Messenger (Wilmington, N.C.).

Wilmington Morning Star (Wilmington, N.C.).

Wilmington News (Wilmington, N.C.).

Wilmington News-Dispatch (Wilmington, N.C.).

Wilmington People's Press (Wilmington, N.C.).

Wilmington Post (Wilmington, N.C.).

Wilmington Recorder (Wilmington, N.C.).

Wilmington Semi-Weekly Messenger (Wilmington, N.C.).

Wilmington Star-News (Wilmington, N.C.).

Wilmington Sun (Wilmington, N.C.).

Wilmington Tri-Weekly Commercial (Wilmington, N.C.).

Wilmington Weekly Star (Wilmington, N.C.)

Wrenn, Tony P.
1981 Wilmington, North Carolina: An Architectural & Historical Portrait. Charlottsville: University of Virginia Press.

Yearns, W. Buck. (editor)
1969 The Papers of Thomas Jordan Jarvis. Raleigh: State Department of Archives and History.

APPENDIX 2A
Survey Area Boundaries

Priority Area 1 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2302230	63050
II	2302870	62020
III	2298060	58460
IV	2297420	59720

Priority Area 2 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2304400	66170
II	2304980	65560
III	2297580	60430
IV	2297100	61740

Priority Area 3 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2316300	175820
II	2316600	175640
III	2314790	169860
IV	2315240	163080
V	2315090	163080
VI	2314640	169880

Priority Area 4 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2320000	107720
II	2320900	107720
III	2320950	104230
IV	2320000	104230

Priority Area 5 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2319180	141200
II	2320000	142000
III	2322080	138440
IV	2321810	134000
V	2321170	134000
VI	2321200	138685

Priority Area 6 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2317000	193000
II	2318000	193000
III	2318000	189000
IV	2317000	189000

Priority Area 7 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2306510	68500
II	2307500	68060
III	2304980	65560
IV	2304400	66170

Priority Area 8 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2315090	163080
II	2315240	163080
III	2314870	157160
IV	2313910	157080

Priority Area 9 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2296750	56690
II	2297300	57150
III	2300600	53280
IV	2300000	52780

Priority Area 10 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2317720	77950
II	2319000	77550
III	2313140	71750
IV	2312450	72515

Priority Area 11 State Plane Coordinates

CONTROL POINT	EASTING	NORTHING
I	2311730	76060
II	2313730	74230
III	2311220	71760
IV	2309860	73300

Priority Area 12 No Control Points.

APPENDIX 2B
Station Locations

Station Locations Area 1

NAME	EASTING	NORTHING	HEIGHT
Southport Ft. Lt.	2296407	58579	20 ft.
Pilot Tower	2297370	62093	45 ft.
GAR 2	2298192	62460	20 ft.
AL 2	2299213	58684	24 ft.

Station Locations Area 2

NAME	EASTING	NORTHING	HEIGHT
Southport Ft. Lt.	2296407	58579	20 ft.
Horseshoe Bk. Lt.	2312558	67710	12 ft.
GAR 2	2298192	62460	20 ft.
AL 2	2299213	58684	24 ft.

Station Locations Area 3

NAME	EASTING	NORTHING	HEIGHT
Molasses Dock	2317000	174908	10 ft.
SPA 15+50	23156690	165481	12 ft.
Jenny	2313808	166366	18 ft.
70+96 N. Dock	2315757	168198	12 ft.
SPA 83+05	2315493	167020	12 ft.

Station Locations Area 4

NAME	EASTING	NORTHING	HEIGHT
Lower Midnight Ft. Lt.	2322534	101487	12 ft.
Upper Midnight Ft. Lt.	2320997	113329	12 ft.
Lower Midnight Bk. Lt.	2324701	110247	42 ft.
MOTSU N. Dock BN 1	2319178	101277	12 ft.

Station Locations Area 5

NAME	EASTING	NORTHING	HEIGHT
Keg Is. Bk. Cl. Lt.	2322379	141791	12 ft.
Lower Big Is. Ft. Lt.	2322905	137259	12 ft.
Lower Big Is. Bk. Lt.	2324349	134664	42 ft.
Lower Liliput Ft. Lt.	2323887	124295	12 ft.

Station Locations Area 6

NAME	EASTING	NORTHING	HEIGHT
Smith Island	2318013	189872	18 ft.
Horton	2316665	189480	10 ft.
Grace	2316626	193190	16 ft.
Old Powerline Base W.	2316465	195440	20 ft.

Station Locations Area 7

NAME	EASTING	NORTHING	HEIGHT
Southport Ft. Lt.	2296407	58579	20 ft.
Horseshoe Bk. Cl. Lt.	2312558	67710	12 ft.
BM Pfizer Dock	2307598	68556	14 ft.
Smith Is. Ft. Cl. Lt.	2302074	54197	12 ft.

Station Locations Area 8

NAME	EASTING	NORTHING	HEIGHT
BCN 53	2314686	155815	10 ft.
Upper Bruns. Bk. Lt.	2315822	160096	20 ft.
Port Expansion Joint	2315711	162380	12 ft.
15+50	2315669	165481	12 ft.

Station Locations Area 9

NAME	EASTING	NORTHING	HEIGHT
Southport Ft. Lt.	2296407	58579	20 ft.
Smith Is. Ft. Cl. Lt	2302074	54197	12 ft.
Tidal 5	2298334	54499	06 ft.
AL 2	2299213	58684	24 ft.

Station Locations Area 10

NAME	EASTING	NORTHING	HEIGHT
Reaves Pt. Ft. Lt.	2318409	78540	12 ft.
Battery Buchanann	2320665	77998	06 ft.
Reaves Pt. Bk. Lt.	2318067	74406	12 ft.

Station Locations Area 11

NAME	EASTING	NORTHING	HEIGHT
Reaves Pt. Ft. Lt.	2318409	78540	12 ft.
Horseshoe Bk. Cl. Lt.	2312558	67710	12 ft.
Reaves Pt. Bk. Lt.	2318067	74406	12 ft.

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